Department of Transportation

I-81 VIADUCT PROJECT – PHASE 1, CONTRACT 2

DESIGN-BUILD PROJECT

PIN 3501.91, Contract D900056

Request for Proposals

Addendum #1

December 6, 2022

Modification to the Request for Proposals

I-81 VIADUCT PROJECT – PHASE 1, CONTRACT 2

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Note to Proposers

Differences between the deleted pages and the revised pages have been identified as follows:

- Brackets have been inserted on the left-hand margin of the pages to indicate where changes have been made to the documents; and
- Text additions have been shown in underlined red font and text deletions have been shown in crossed out red font.

General Instructions

Delete Page A-2 of the Instructions to Proposers, Appendix A, Project Information, and substitute the attached revised Page A-2.

Delete Form FHWA-1273 of the DB Contract Documents, Part 1, Appendix B, Federal Requirements, and substitute the attached revised Form FHWA-1273. Please note, the form is being replaced in its entirety but the only changes are due to formatting.

Delete Pages v, vii, 2, 133, 140, 141, 150 through 156, 163, 175, 188, 189, 196, and 206 of the DB Contract Documents, Part 3, Project Requirements, and substitute the attached revised Pages v, vii, 2, 133, 140, 141, 150 through 156, 163, 175, 188, 189, 196, and 206. Please note, there are no tracked changes on Pages v and vii but the pages are included due to updates to the Table of Contents.

Delete Page 18 of the DB Contract Documents, Part 3, Project Requirements, Appendix D – Attachment 1, Schedule of Construction Quality Assurance and Verification Inspection, and substitute the attached revised Page 18.

Delete Pages ii, iii, 4-4, 4-8, 4-9, 4-10, 4-13, and 4-14 of the DB Contract Documents, Part 4, Appendix A, Utility Requirements, and substitute the attached revised Pages ii, iii, 4-4, 4-8, 4-9, 4-10, 4-13, and 4-14. Please note, there are no tracked changes on Pages ii and iii, but the pages are included due to updates to the Table of Contents.

Delete Pages 15 and 43 of the DB Contract Documents, Part 5, Special Provisions, and substitute the attached revised Pages 15 and 43.

Delete Pages 1 through 8 of the DB Contract Documents, Part 6, RFP Plans - Directive Notes and substitute the attached revised Pages 1 through 9. Please note, there are no tracked changes included on Pages 2 and 7 but the pages are included due to updates to the footer and a shift in text resulting from additions to Pages 1 and 3 through 6.

Delete Drawings S6-01, SC1-01, SC1-02, SR2-01, S7-01, CSX-01, CSX-02, CSX-03, CSX-06, CSX-07, CSX-08, CSX-11, CSX-13, CSX-30, CSX-31, CSX-33, CSX-34, SR1-01, and SR1-02 of the DB Contract Documents, Part 6, RFP Plans – Indicative Plans and substitute the attached revised Drawings S6-01, SC1-01, SC1-02, SR2-01, S7-01, CSX-01, CSX-02, CSX-03, CSX-06, CSX-07, CSX-08, CSX-11, CSX-13, CSX-30, CSX-31, CSX-33, CSX-34, SR1-01, and SR1-02.

Delete Page i of the DB Contract Documents, Part 7, Engineering Data (Part 5 of 5), and substitute the attached revised Page i. Please note, there are no tracked changes included on Page i but the page is included due to updates to the Table of Contents.

Add the attached Structural Details – Fixed Frame Abutment drawing, Page x, and the Southern Interchange Impervious Drainage Limits & Potential Existing Sinkhole Area of Concern Map to the DB Contract Documents, Part 7, Engineering Data (Part 5 of 5).

Delete Pages ii and iii of the DB Contract Documents, Part 8, Special Specifications, and substitute the attached revised Pages ii and iii.

Add the following attached Specifications to the DB Contract Documents, Part 8, Special Specifications:
ITEM 555.12010001 - STRUCTURAL LIGHTWEIGHT CONCRETE
ITEM 567.51000016 - SEALING EXISTING BRIDGE DECK JOINTS
ITEM 579.03000002 - STRUCTURAL SLAB RECONSTRUCTION PREPARATION, HYDRODEMOLITION – REINFORCEMENT EXPOSURE NOT REQUIRED
ITEM 584.21010001 - ULTRA-HIGH PERFORMANCE CONCRETE (UHPC) OVERLAY
ITEM 800.1000NN15 – DESIGN BUILD – UTILITY RELATED WORK

No other provision of the solicitation is otherwise changed or modified.

2. Widen bridge to accommodate three travel lanes, including extension of abutments, foundations, and superstructure to accommodate needed width
3. Replace bearings and pedestals

F) Improvements to the new section of I-81 (former I-481) between Interchange 4 (I-690) and Interchange 3 (Dewitt/Fayetteville)

1. Reconstruct portions of the 4-lane to 3-lane merge between Interchange 4 (I-690 eastbound ramp) along I-81 southbound (former I-481) to Kinne Road bridge
2. Reconstruct and lengthen the auxiliary lane along I-81 northbound (former I-481 northbound) from Interchange 3 (Genesee Street to I-81 northbound on ramp) to Kinne Road bridge
3. Mill and pave existing highway section
4. Drainage improvements

G) Reconstruct portions of Interchange 3 (Dewitt/Fayetteville) 1093562 – I-481NB over Route 290 (Manlius Center Road)

1. Reconstruct and widen I-81 southbound (former I-481) off ramp to East Genesee Street westbound and install a traffic signal at the intersection of the off ramp and East Genesee Street. Reconstructed ramp to include turning lanes to East Genesee Street in both the east and west direction.
2. Remove the off ramp from I-81 southbound (former I-481) to East Genesee Street eastbound
3. Reconstruct a portion of the East Genesee Street westbound to I-81 southbound (former I-481) ramp and merging lane
4. Reconstruct and widen a portion of East Genesee Street eastbound from approximately 250’ west of Ambergate Road to the I-81 southbound (former I-481) bridge
5. Mill and pave existing highway section
6. Drainage improvements

H) Improvements to the NYS Route 5/92 intersection (Lyndon Corners)

1. Construct an additional lane on East Genesee Street eastbound and Highbridge Road eastbound, beginning at approximately 600’ west of the NYS Route 5/92 intersection continuing approximately 1000’ east of the NYS Route 5/92 intersection
2. Mill and pave existing highway section
3. Drainage improvements

I) Reconstruct the existing I-81/I-481 Southern Interchange

1. Demolish the existing ramp that connects northbound I-81 to northbound I-481
2. Demolish the existing ramp that connects southbound I-481 to southbound I-81, includes BIN 1069090
3. Demolish the existing ramp that connects southbound I-481 to northbound I-81
4. Demolish the existing ramp that connects East Brighton Avenue to existing I-81 northbound
5. Reconstruct a portion of East Brighton Ave, includes BIN’s 1069110 and 1069120
6. Relocate existing East Glen Avenue to align with new I-81 southbound (former I-481) ramp to East Brighton Avenue and installation of a traffic signal; this work to include four ramps at East Glen Avenue: BL 81 southbound (former I-81) to East Glen

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under title 23, United States Code, as required in 23 CFR 633.102(b) (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services). 23 CFR 633.102(e).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider. 23 CFR 633.102(e).

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services) in accordance with 23 CFR 633.102. The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in solicitation-for-bids or request-for-proposals documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract). 23 CFR 633.102(b).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract. 23 CFR 633.102(d).

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

II. NONDISCRIMINATION (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

The provisions of this section related to 23 CFR Part 230, Subpart A, Appendix A are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR Part 60, 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR Part 60, and 29 CFR Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR Part 230, Subpart A, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal Employment Opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (*see* 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140, shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR Part 35 and 29 CFR Part 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract. 23 CFR 230.409 (g)(4) & (5).

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, sexual orientation, gender identity, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action or are substantially involved in such action, will be made fully cognizant of and will implement the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action

within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs (i.e., apprenticeship and on-the-job training programs for the geographical area of contract performance). In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. 23 CFR 230.409. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established thereunder. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors, suppliers, and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurances Required:

a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. The contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:
(1) Withholding monthly progress payments;
(2) Assessing sanctions;
(3) Liquidated damages; and/or
(4) Disqualifying the contractor from future bidding as non-responsible.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women.

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of more than $10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, the contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location under the contractor's control where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 “Contract provisions and related matters” with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages (29 CFR 5.5)

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH–1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b.(1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding (29 CFR 5.5)

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records (29 CFR 5.5)

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b.(1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency.

(2) Each payroll submitted shall be accompanied by a “Statement of Compliance,” signed by the contractor or

subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under 29 CFR 5.5(a)(3)(ii), the appropriate information is being maintained under 29 CFR 5.5(a)(3)(i), and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 231.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees (29 CFR 5.5)

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the

corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. 23 CFR 230.111(e)(2). The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract as provided in 29 CFR 5.5.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract as provided in 29 CFR 5.5.

9. Disputes concerning labor standards. As provided in 29 CFR 5.5, disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility (29 CFR 5.5)

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Pursuant to 29 CFR 5.5(b), the following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek. 29 CFR 5.5.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph 1 of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph 1 of this section, in the sum currently provided in 29 CFR 5.5(b)(2)* for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph 1 of this section. 29 CFR 5.5.

* $27 as of January 23, 2019 (See 84 FR 213-01, 218) as may be adjusted annually by the Department of Labor; pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990).

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 2 of this section. 29 CFR 5.5.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs 1 through 4 of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1 through 4 of this section. 29 CFR 5.5.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term “perform work with its own organization” in paragraph 1 of Section VI refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions: (based on longstanding interpretation)

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
(2) the prime contractor remains responsible for the quality of the work of the leased employees;
(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract. 23 CFR 635.102.

2. Pursuant to 23 CFR 635.116(a), the contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. Pursuant to 23 CFR 635.116(c), the contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract. (based on long-standing interpretation of 23 CFR 635.116).

5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR Part 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract. 23 CFR 635.108.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR Part 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704). 29 CFR 1926.10.

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance

with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR Part 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 11, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT (42 U.S.C. 7606; 2 CFR 200.88; EO 11738)

This provision is applicable to all Federal-aid construction contracts in excess of $150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.326.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.326.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200. 2 CFR 180.220 and 1200.220.

1**. Instructions for Certification – First Tier Participants:**

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction. 2 CFR 180.320.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default. 2 CFR 180.325.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances. 2 CFR 180.345 and 180.350.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900-180.1020, and 1200. “First Tier Covered Transactions” refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant

who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction. 2 CFR 180.330.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold. 2 CFR 180.220 and 180.300.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (https://www.sam.gov/). 2 CFR 180.300, 180.320, and 180.325.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default. 2 CFR 180.325.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.335;.

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property, 2 CFR 180.800;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification, 2 CFR 180.700 and 180.800; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

3. **Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders, and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200). 2 CFR 180.220 and 1200.220.

a. By signing and submitting this proposal, the prospective lower tier participant is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances. 2 CFR 180.365.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900 – 180.1020, and 1200. You may contact the person to which this proposal is

submitted for assistance in obtaining a copy of those regulations. “First Tier Covered Transactions” refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated. 2 CFR 1200.220 and 1200.332.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold. 2 CFR 180.220 and 1200.220.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (https://www.sam.gov/), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment. 2 CFR 180.325.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(a) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(b) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(c) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal.

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XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000. 49 CFR Part 20, App. A.

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier

subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

XII. USE OF UNITED STATES-FLAG VESSELS:

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal-aid construction project, the bidder, proposer, contractor, subcontractor, or vendor agrees:

1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels. 46 CFR 381.7.

2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, ‘on-board’ commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS (23 CFR 633, Subpart B, Appendix B)
This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

B) Bridge No. 14, BIN 1093571 – I-481SB over CSX Rail Yard

1. Widen bridge to accommodate three travel lanes, including extension of abutments, foundations, and superstructure to accommodate needed width
2. Replacement of concrete bridge deck, including jointless details with sleeper slabs at the abutments
3. Minimize number of joints on the bridge
4. Concrete and steel repairs
5. Replacement of concrete bridge barrier
6. Replacement of bearings and pedestals
7. Structural Steel Painting

C) Bridge No. 15, BIN 1093572 – I-481NB over CSX Rail Yard

1. Widen bridge to accommodate three travel lanes, including extension of abutments, foundations, and superstructure to accommodate needed width
2. Replacement of concrete bridge deck, including jointless details with sleeper slabs at the abutments
3. Minimize number of joints on the bridge
4. Concrete and steel repairs
5. Replacement of concrete bridge barrier
6. Replacement of bearings and pedestals
7. Structural Steel Painting

D) Bridge No. 17, BIN 1093562 – I-481NB over Route 290 (Manlius Center Road)

1. Replace superstructure
2. Replace bearings and pedestals

E) Bridge No. 16, BIN 1093561 – I-481SB over Route 290 (Manlius Center Road)

1. Replace superstructure
2. Widen bridge to accommodate three travel lanes, including extension of abutments, foundations, and superstructure to accommodate needed width
3. Replace bearings and pedestals

F) Improvements to the new section of I-81 (former I-481) between Interchange 4 (I-690) and Interchange 3 (Dewitt/Fayetteville)

1. Reconstruct portions of the 4-lane to 3-lane merge between Interchange 4 (I-690 eastbound ramp) along I-81 southbound (former I-481) to Kinne Road bridge
2. Reconstruct and lengthen the auxiliary lane along I-81 northbound (former I-481 northbound) from Interchange 3 (Genesee Street to I-81 northbound on ramp) to Kinne Road bridge
3. Mill and pave existing highway section
4. Drainage improvements

G) Reconstruct portions of Interchange 3 (Dewitt/Fayetteville) 1093562 – I-481NB over Route 290 (Manlius Center Road)

1. Reconstruct and widen I-81 southbound (former I-481) off ramp to East Genesee Street westbound and install a traffic signal at the intersection of the off ramp and East Genesee Street. Reconstructed ramp to include turning lanes to East Genesee Street in both the east and west direction.
2. Remove the off ramp from I-81 southbound (former I-481) to East Genesee Street eastbound

SECTION 14 STRUCTURES

14.1 SCOPE

The Design-Builder shall be responsible for all work necessary to complete the design and construction of all permanent and temporary structures required to complete the Project, including, but not limited to, the permanent bridges, noise walls, retaining walls, traffic railings/barriers, sign structures, and miscellaneous structural components. The design and construction of all structural systems and components shall provide functionality, durability, ease of maintenance and inspection, and safety.

The following new bridges shall be constructed:

Bridge No.	Feature Carried	Feature Crossed
7	East Brighton Avenue	I-81
8	BL 81 SB to I-81 NB Ramp	BL 81
9	I-81 NB	BL 81 NB
10	I-81 NB	BL 81 SB to I-81 NB Ramp
11	I-81 SB	BL 81 NB and BL 81 SB to I-81 NB Ramp
12	I-81 NB	East Seneca Turnpike
13	Relocated East Glen Avenue	BL 81 NB and BL 81 SB

The following bridge shall be replaced:

Bridge No.	BIN	Feature Carried	Feature Crossed
1	1031501	I-81 SB	East Seneca Turnpike

The following bridge shall be rehabilitated:

Bridge No.	BIN	Feature Carried	Feature Crossed
17	1093562	I-81 (former I-481) NB	Route 290 (Manlius Center Road)
18	1031502	I-81 NB	East Seneca Turnpike

The following bridges shall be rehabilitated and widened:

Bridge No.	BIN	Feature Carried	Feature Crossed
14	1093571	I-81 (former I-481) SB	CSX Railyard
15	1093572	I-81 (former I-481) NB	CSX Railyard
16	1093561	I-81 (former I-481) SB	Route 290 (Manlius Center Road)

The following bridges shall be demolished and removed:

Bridge No.	BIN	Feature Carried	Feature Crossed
2	1031510	East Glen Avenue	I-81
3	1069090	I-481 SB to I-81 SB	I-81 SB
4	1069100	I-81 SB Ramp to I-481	I-81 NB
5	1069110	Brighton Ave.	I-481 Ramp from I-81 SB and I-81 NB

repairs needed to return the substructure element to a satisfactory condition will be paid for by the Department under the Extra Work Item.

~~All new and existing concrete substructures shall be coated with penetrating type protective sealer.~~All exposed surfaces of new and existing concrete substructures, including pedestals, shall be coated with penetrating type protective sealer.

The vertical distance from the top of bridge seat to the bottom of superstructure shall not exceed 2'-6" on new or modified spans.

Abutments: ~~The tops of all new and existing bridge seats, all bearing pedestal surfaces, and the backwall tops and face below expansion joints shall be coated with penetrating type protective sealers.~~ When an expansion joint is located at an abutment, stainless steel reinforcement shall be used in the backwall, pedestals, bridge seat, and top 2 ft. of the front face of the stem. Reinforcing bars that extend from the abutment stem into the backwall below expansion joints shall be stainless steel.

For discrepancies that exist between the NYSDOT Bridge Manual Section 11.2.1, Integral Abutments, and the NYSDOT BD Sheets, the NYSDOT Bridge Manual shall govern. Additionally, the NYSDOT BD Sheets on integral abutments are amended as follows:

1) Pre-excavating holes at pile locations and backfilling with cushion sand is not required.
2) A horizontal construction joint between the backwall and deck is prohibited. If necessary, a vertical construction joint may be located 9 ft. into the span as shown on BD-ID4E.
3) Where it is appropriate to be used, the "Temporary Steel Girder Support" shown on BD-ID2E shall be designed for all applicable loading, and the plate and bolt dimensions shall not be less than those shown.

Piers: New concrete pier footing to column, and column to cap, connections shall provide full moment continuity. The use of bearings or hinges below the bridge seat elevation is prohibited.

Pier Caps Below Expansion Joints: ~~All bearing pedestal and pier cap surfaces shall be coated with penetrating type protective sealers.~~ All reinforcement completely contained within the pedestals and pier cap shall be stainless steel reinforcement. Reinforcement that extends into the cap beam shall not be plain steel.

Solid Wall-Type Piers Below Expansion Joints: ~~All bearing pedestal surfaces, the top of the pier bridge seat, and the vertical surfaces extending 10'-0" down from the pier bridge seat shall be coated with penetrating type protective sealer.~~ All reinforcement that is completely contained within or extends into the pedestals shall be stainless steel reinforcement. All reinforcement completely contained within the top 5'-0" of the pier, measured from the top of the pier bridge seat, shall be stainless steel reinforcement. Reinforcement that extends into the top 5'-0" of the pier shall not be plain steel.

H) Earth Retaining Structures: The Design-Builder shall determine the location(s) and types of earth retaining structures and shall design them in accordance with all applicable Project Requirements. Wingwalls shall be considered as part of the abutment for a distance, measured along the wingwall from the intersection of the centerline of bearings and fascia, equal to the height of the abutment stem (as measured from top of footing to the average bridge seat elevation). Gabion and crib walls are not permitted. New earth retaining structures shall not rely on existing structures to derive support nor reduce loading on the new earth retaining structures.

I) Foundations: The Design-Builder shall calculate short-term and long-term settlement of new foundations for the different geotechnical conditions along the bridge. Long-term settlements for bridge foundations shall not exceed one (1) inch over a 50-year timeframe. Allowable vertical clearance shall be based upon the final long-term settlement calculated.

For all new and replacement bridges, one type of foundation (i.e. deep or shallow) must be utilized for the entire bridge except that a shallow foundation may be used in conjunction with deep foundation(s) when that shallow foundation is bearing on competent bedrock.

For existing substructures with deep foundations that require widening, a deep foundation shall be used for the widening. For existing substructures with shallow foundations that require widening, a deep foundation is acceptable for the widening. For existing substructures with shallow foundations that require widening, a shallow foundation is acceptable for the widening provided that the expected settlement of the new portion of the foundation matches the expected remaining settlement of the existing shallow foundation.

When existing foundations are reused or repurposed, the design pile load or bearing pressure that is stated on the record plans shall not be exceeded.

J) Mass Concrete: Mass Concrete Placements shall be in accordance with the NYSDOT Bridge Manual. All reinforcement located in the mass placement(s), except for footings, shall be epoxy coated reinforcement unless otherwise noted or specified in other sections of the RFP. The combination of reinforcement and concrete mixture permeability shall meet any defined service life requirements of the RFP.

K) Drainage: Drainage requirements are outlined in Section 21 of these Project Requirements.

L) BIN Plate Sign: The Design-Builder shall furnish and install a new BIN Plate meeting the requirements set forth in this section.

The material requirements for the BIN Plate are:

- Panel with reflective background: The aluminum panel shall conform to the requirements of the NYSDOT Standard Specifications. The background material shall be green reflective sheeting conforming to the requirements of the NYSDOT Standard Specifications for Class A Sheeting. The size of the panels shall be 1/8 inch thick by 3 inches by 12 inches. A thin rubber or plastic gasket or sheeting matching the plate size shall be placed behind the plate prior to installation.

- Numbers: The numbers shall be reflective sheeting conforming to the requirements of the NYSDOT Standard Specifications for Class A Sheeting, except that the adhesive shall be pressure-sensitive such that the numbers can be applied to the background in the field. The numbers shall be 2 inches high and silver-white in color conforming to FHWA series C dimensions.

Prior to placing the numbers on the panel, the reflective background shall be clean and free of dirt and oil which may adversely affect proper adhesion. The numbers shall be placed on the reflective background, perpendicular to the longitudinal axis of the panel and vertically centered. The reflective background and numbers shall be coated and/or edge sealed in accordance with the recommendations of the sheeting manufacturer.

SECTION 16 SIGNAGE, PAVEMENT MARKINGS, AND TRAFFIC SIGNALS

16.1 SCOPE OF WORK

The Design-Builder shall provide all permanent fixed signing, permanent pavement markings, and traffic signal work required for the Project.

The Design-Builder shall be responsible for identifying, designing, detailing, fabricating, delivering and installing all signing (including reference markers and enhanced reference location signs), pavement marking materials and traffic signal equipment and shall install all components necessary for a complete and functional system which, in addition to meeting the design and construction criteria specified above, meets the following requirements:

A) Provides for the orderly and predictable movement of all traffic;

B) Provides such regulation, guidance, warnings and advisories as are needed to ensure safe and informed operation;

C) Is fully and seamlessly integrated into the existing signing elements beyond the Project limits; and

D) Is integrated into the existing intelligent transportation system (ITS) components, if applicable.

16.2 STANDARDS

The Design-Builder shall perform the design and construction of the signage, pavement marking, and traffic signals activities in accordance with Contract Requirements and the applicable Standards, Design Codes, and Manuals cited in Section 1.6, unless otherwise stipulated in this Project Requirement or otherwise applicable to the Project.

16.3 REQUIREMENTS

16.3.1 Design Requirements

The Design-Builder shall develop signing plans, pavement marking plans, and traffic signal plans for the Project that shall:

A) Provide for all components as called for in this Section 16;

B) Encompass the replacement of all existing signs within the following limits:

1. I-81 NB and SB - ~~2.5 miles south of the I-81/BL 81 interchange~~ from Sentinel Height Road to just north of the existing bridges over Kirkville Road.
2. BL 81 NB and SB - from the I-81/BL 81 interchange to just north of the bridge over Calthrop Avenue.
3. Calthrop Ave. - from the Calthrop Ave./S. Salina St. intersection to the northbound ramp intersection.
4. Rt 5/92 - from 350 feet west and north of the Erie Blvd. East/East Genesee Street intersection to 1,600 feet east of the Rt5/92 (Lyndon Corners) intersection
5. I-690 NB and SB - from Bridge Street to new I-81 (former I-481).

6. Kirkville Road - from 250 feet west and north of the Fly Rd./Kirkville Rd intersection to 200 feet east of the Roberts St./Kirkville Rd. intersection.

C) Provide signing, traffic signals and pavement markings for bicycle and pedestrian facilities within the Project Limits, where applicable;

D) Locate signs in accordance with the National MUTCD and the NYS supplement to the National MUTCD. Design overhead sign structures in accordance with the NYSDOT Overhead Sign Structures Design Manual;

E) As applicable, and within the limits noted above, all existing I-81 shields shall be replaced with BL 81 shields, all I-481 shields shall be replaced with I-81 shields;

F) All exit numbers on existing signs, within the limited notes above, will provide the new mileage based exit number as well as the former exit number as indicated in the Part 6 – ~~Directive~~Indicative Plans;

G) Design-Builder shall maintain the I-81 and I-481 shields so they are visible until the Department directs they can be changed, which will occur when the routes are officially designated and de-designated. At that time, the route panels with the new designations may be visible;

H) All reference markers along the highway segments noted above shall be replaced in accordance with the NYSDOT Reference Marker Manual. Reference markers shall have a 7 ft mounting height;

I) Provide signs with high reflectivity with Type IX sheeting such as to not warrant sign lighting;

J) Design-Builder shall replace all interstate shields for I-81 and I-481 with BL 81 and (new) I-81 within 1 mile of interchanges; and

K) Provide municipal boundary signs along existing I-481 corridor; and

L) New guide signs shall not reference “Shoppingtown” or “Shoppingtown Mall” as a destination.

16.3.2 Construction Requirements

16.3.2.1 Signs

The Design-Builder shall not reuse any existing NYSDOT sign materials as part of the permanent signing installation and shall be responsible for the disposal of all signing materials and structures that are removed from the Project. Standard signs owned by municipalities other than NYSDOT, and non-standard signs owned by private entities but placed within NYSDOT right-of-way, with the acceptance of the Department, shall be removed, stored and reinstalled as required.

The Design-Builder shall be responsible for the provision of all signs, posts, frames and other structural components required for the installation and support of the sign panels.

16.3.2.2 Pavement Markings

Cross hatching pavement markings shall be installed in accordance with the Department’s Specifications for Epoxy Reflectorized Pavement Markings. All special markings (Letters &

Symbols) shall be installed in accordance with the Department's Specifications. Any striping required on local roads shall receive "paint" markings.

All linear roadway markings installed on BL-81 and I-81 shall be installed in accordance with special specification 685.1X010004 Epoxy Paint with wet-night reflective elements, 20mils (grooved pavement method).

16.3.2.3 Milled In Audible Roadway Delineators (MIARD)

The Design-Builder is responsible for replacing all MIARDs that are removed or impacted due to the work noted elsewhere in this RFP and installed as section 649 of standard specifications.

16.3.2.4 Traffic Signals

There are signalized intersections within the limits of the Project that include traffic signals as well as pedestrian crossing signals, locations of which are listed below:

New Signal Locations

- I-81 SB Ramp to Genesee St (Rt 5/92, existing exit 3W Dewitt)

Replacement Signals

- Genesee St (Rt 5/92) at Lyndon Corners
- I-81 SB Ramp to Brighton Ave at Brighton Ave and relocated East Glen Ave
- Brighton Ave at Rock Cut Road (owned by City of Syracuse)

Existing Signals to be Enhanced with Non-Intrusive Vehicle Detection

- Genesee St (Rt 5/92) at Maple Drive
- Genesee St (Rt 5/92) at Wegmans Driveway

The Design-Builder shall replace the existing traffic and pedestrian crossing signals with traffic signal pole and mast arm supports meeting current standards. Audible pedestrian push button control systems meeting current ADA standards shall be installed with pedestrian signal indicators and count-down timers at the pedestrian safety walks. The Design-Builder shall design the traffic signals to be installed on far-side mast arm structures, with arms not exceeding 65' in length. If longer mast arms or the use of span wire structures are deemed necessary, the Design-Builder shall request approval from the Department. For signals being enhanced with non-intrusive detection, the Design-Builder shall remove the existing controller cabinet and its contents and install a new state-supplied cabinet (Item 680.80324515) and non-intrusive vehicle detection system. Item 680.80324515 - Install Microcomputer Cabinet contains cabinet request and delivery details.

At each intersection, the Design-Builder shall design and install new traffic signal infrastructure. The traffic signal infrastructure shall include installation of a new state-supplied cabinet and controller (Item 680.80324515), mast arm and supplemental signal ~~span~~ poles, signal heads including backplates with retro-reflective tape in all directions, pedestrian signal poles, pedestrian

signals and audible ped buttons, cables and conduits, vehicle detection systems, power service meter with a ~~state- supplied~~ disconnect/transfer switch (Item 680.94997008), and relocation of any communication ~~and/or signal preemption~~ devices at existing signals within the project limits. The Design-Builder shall design replacement signals to closely resemble the existing signal operations. The work shall include all equipment, hardware mountings, cabling, software modifications and labor necessary to install and integrate a fully operational signalized intersection. All signal materials used in the signal installation and/or modification shall be listed in the latest NYSDOT Approved and Qualified Product Lists and shall conform with section 700 of the Standard Specifications. All signal equipment shall be placed in a location that complies with the NYS High Voltage Proximity Act. This includes, but is not limited to, keeping all signal equipment a minimum of 10 ft from primary lines, and 2 ft from secondary and all other lines. The Design-Builder shall install, at all signals within the jurisdiction limits of the City of Syracuse, fire pre-emption equipment that meets the Local Specs 680.560200OD and 680.560300OD.

The Design-Builder ~~wi~~shall be responsible for maintaining the existing signal until the new signal is activated. The Design-Builder shall be responsible for removal and disposal of existing traffic signal poles, mast arms, span wire, signal brackets, overhead signs, signal and pedestrian sections, wiring, pedestrian and supplemental poles, and non-LED signal modules. The Design-Builder shall be responsible for removal and delivery of all LED modules, pedestrian push buttons, the controller cabinets, and all its contents directly to the Department.

Two weeks prior to beginning any construction work on traffic signals associated with the project, the Design-Builder shall notify the regional traffic signal section to perform an inspection of the existing traffic signal equipment. After the inspection, the Design-Builder shall submit to the Department a written notification of the date they will assume responsibility for traffic signal maintenance. No construction work shall proceed until traffic signal maintenance is assumed by the Design-Builder. The existing traffic signal shall be maintained by the Design-Builder under the requirements of Section 619 of the Standard Specifications, except for the controller, programming, and timing which shall be maintained by the Department.

Traffic signal activation shall be done by NYS Traffic Signal Personnel only. The Design-Builder shall notify the NYS traffic Signal section two weeks prior to the requested date of activation.

The Design-Builder shall integrate the signals into the existing ITS system.

Refer to Reference Documents on the project website for sample signal plans and a NIVD template.

16.3.2.5 Loop Detectors

Section not used.

16.3.3 Vehicle Detection

The Design-Builder shall use non-intrusive vehicle detection systems at all NYSDOT new and replacement signals to be enhanced with this type of detection. The primary equipment used for non-intrusive detection is video detection for either at-intersection or advance vehicle detection purposes. The non-intrusive detection system installed shall meet the requirements of Special Specification 680.05010007, 680.05020007 and 680.05040004. The equipment provided for Item 680.05010007 – 360 Degree Camera Video Detection System and Item 680.05020007 – 360

Degree Camera Assembly shall not require any background masking, and software updates shall be done remotely by an automatic push to all sites. The software shall also have the ability to classify vehicle counts into six distinct types: bicycles, cars and light vehicles, motorcycles, buses, single-unit trucks, and articulated trucks.

For at-intersection vehicle detection systems, a 360-degree video detection camera and its system shall be installed as directed by the equipment manufacturer or by their representatives. The Design-Builder shall design the detection zones to have, for each lane, one 6'x6' counter zone in front of the stop bar, one 6'x40' presence zone behind the stop bar, and one radius zone for each intersection approach. For advance detection zones, each intersection approach with a speed limit of 45 mph or above shall have 6'x6' detection zones in all through lanes of the approach. The distance of the advance detection zone to the stop bar shall be in accordance with ITE and AASHTO standards and guidelines.

The Design-Builder shall maintain existing vehicle detection with reasonable care. Unless otherwise noted, the maximum length of time that an intersection can operate without detection is two (2) weeks.

16.3.4 Conduit/Cabling Requirements

The following cables shall be utilized during the installation of new traffic and pedestrian signal heads:

A) Pedestrian/Countdown Timer and pushbutton sign: Furnish and install Signal Cable, 7-Conductor, 14 AWG for each set display; No other size conductors shall be used for pedestrian heads. Multiple 7-Conductor, 14 AWG cables may be used in the same pedestrian pole. One 7-conducter cable cannot be shared by more than one pedestrian phase, nor can it be shared by two corners of the same ped phase;

B) One-way signal heads: Furnish and install Signal Cable, 7-Conductor, 14 AWG per approach signal phase. No other size conductors shall be used for signal heads. Multiple numbers of Signal Cable, 7-Conductor, 14 AWG may be used in the same mast arm pole. Only one-way signal head assemblies shall be used.

Each and every cable entering the controller cabinet shall be permanently marked by function and phase stamped on NYSDOT approved tags. The tags shall be attached to the cables with a plastic or nylon line.

The Design-Builder shall furnish and install the following conduit as a minimum:

A) Conduits under roadway shall be 3" RGS (PVC for the City of Syracuse signal at Brighton Ave and Rock Cut Road).

B) Conduits between Span or Mast Arm poles or controller base and nearest pull box shall include a 2" RGS (PVC for the City of Syracuse signal at Brighton Ave and Rock Cut Road) and 4" RGS (PVC for the City of Syracuse signal at Brighton Ave and Rock Cut Road).

C) Conduits between Pedestrian poles and nearest pull box shall use a 2" RGS (PVC for the City of Syracuse signal at Brighton Ave and Rock Cut Road).

All other underground conduit installations shall be 2" RGS (PVC for the City of Syracuse signal at Brighton Ave and Rock Cut Road). If any conduit cross section is expected to be more than 50% full, a second run of same size conduit shall be implemented. All signal conduits shall be bonded with a #6 bare stranded copper ground wire. All couplings and bushings shall be mechanically threaded, compression or slip type couplings, or bushings will not be allowed. Bends in conduit are not allowed. All roadway crossings shall be bored, open cuts are not allowed unless the roadway is being newly constructed. Every conduit entrance to the traffic signal cabinet shall be sealed using non-shedding stainless steel sponges. Maximum distance of conduit runs between pullboxes shall not exceed 150 feet in distance.

16.3.5 Signal Heads/ Overhead Signs

All signal faces to be installed at NYSDOT signals as part of this Project shall be 12" LED. The number of required signal heads shall follow the MUTCD recommendation. The Design-Builder shall design all protected-permissive movement to have flashing yellow arrow operation, along with a temporary "LEFT TURN YIELD ON FLASHING YELLOW ARROW" sign to be located to the left of the signal head. Every approach lane that is not designated as a shared left/thru/right lane shall have a lane designation sign placed over the center of the lane. For the purposes of traffic signal design, all thru and right movement heads shall be aligned over the right lane line of each lane, and all left turn movement heads shall be aligned 3' to the left of the lane designation sign. All signal heads shall have ~~dark green~~ polycarbonate signal sections and shall have 5" non-louvered, flat black finish back plates with 3" wide yellow reflective tape border around the outer edge. Signal section color shall be dark green except in the City of Syracuse signal at Brighton Ave and Rock Cut Road where they shall be Federal Yellow. No primary traffic signal heads shall be installed less than 40' from the stop bar or more than 180' from the stop bar.

All signals and overhead signs in this project shall be a minimum of 16.5 feet above the high point of the roadway, with all red indications level across the intersection. No exceptions shall be made for signals mounted below 16.5 feet. For signals with back plates mounted on them, the bottom of the back plate shall be a minimum of 16.5 feet above the high point of the roadway

Supplemental signal heads for the major movement of each approach are required for interstate off ramp approaches, for approaches with 45 mph or higher speed limit and for any approach its primary signal heads are located between 120' and 180' from the approach's stop bar. The placement of the supplemental signal heads shall follow the MUTCD recommendations. Supplemental heads with 4 or more sections shall be bracket mounted with all sections installed in a vertical arrangement.

All street signs name shall be installed on the arm. All street name signs shall meet the latest guidelines of the MUTCD. Overhead street signs shall have 12" letter heights but shall be kept to 10 feet or less in width. Street signs less than 7.5 feet long shall have a minimum of two mounts on the mast arm. Street signs greater than 7.5 feet long shall have a minimum of three mounts. Street signs shall be installed perpendicular to the approach, mounting equipment used shall be similar to that used for item 680.8207.

16.3.6 Pedestrian Signals

All pedestrian signals shall be 12" LED and shall consist of combination "Walking Man"/"Hand" symbols with countdown timers. Pedestrian signal installations shall also include audible signals, countdown timers and ADA compliant pedestrian pushbuttons for all marked, signalized crosswalks. Pedestrian countdown timers shall meet the requirements of Special Specification 680.81500010. Standard Specifications 680.67XX and 680.68XX are modified allowing only aluminum pedestrian signal poles, pole base shall have 9-10-inch bolt circle, no transformer base is allowed. All pedestrian push buttons shall be located parallel with the appropriate crosswalk. The design-builder shall provide

the Regional Traffic Safety and Mobility Group with a list of street names to be programmed into the pedestrian signal for approval prior to ordering and shall provide the Regional Traffic Safety and Mobility Group with the audio file for all audible pedestrian signals prior to activation. Audible pedestrian signals shall meet the requirements of Special Specification 680.81330010 and shall include programming all the following settings for an audible pedestrian signal prior to activation:

Locate Vol Min: 50; Locate Vol Max: 60; Info Msg Vol Min: 50; Std Walk Vol Min: 50; Std Walk Vol Max: 60; Ext. Walk Vol Min: 50; Ext Walk Vol Max: 60; Vol over Ambient: +5.

16.3.7 Signal Poles/ Foundations

Each arm shall extend 5' past the last attachment point on the arm. If the last attachment is a flashing yellow arrow signal head, the temporary "LEFT TURN YIELD ON FLASHING YELLOW ARROW" sign should be installed within the 5' arm extension beyond the signal head. The Design-Builder shall prepare a mast arm loading table to be included in the signal plans (deliverables) and to be provided to the pole manufacturer. It shall be the Design-Builder's responsibility, in conjunction with the pole manufacturer, to determine the ultimate mast arm pole strength and footing moment for the pole's design loading, the footing moment for the pole's ultimate design loading shall be calculated to select the proper footing code from the standard sheet 680-01. Calculated moments and footing type shall be recorded on the signal plans (deliverables) for the contract records. All signal heads shall be assumed to have a 5-section face with a 5" backplate, all overhead and street name signs need to be included in the calculations; along with two (2) additional future signs included per approach for future loading. These future signs shall have a square footage of 12 sf and 7.5 sf, for calculation purposes, the larger future sign shall be placed on the end of the mast arm and smaller future sign shall be placed mid-span on. The pole manufacturer and Design-Builder shall be responsible to design the signal pole and mast arm to meet these future needs. The Design-Builder shall calculate pole heights to accommodate the 16.5' minimum vertical clearance requirement with center of the mast arm passes between the top (red) indication and the second signal indication. For those mast arms in which fire pre-emption equipment will be mounted, the hole for the device shall only be drilled on the bottom side of the mast arm. The hole shall also be sealed after insulation is tested. At intersections where signal poles or pedestrian poles are being placed in sidewalks, the top of the foundation shall be flush with the top of the sidewalk.

16.3.8 Controller, Cabinet~~/~~ & Disconnect Switch

The Design-Builder shall install one state-supplied microcomputer cabinet at each of the NYSDOT signalized intersections. At the City of Syracuse signal (Brighton Ave and Rock Cut Road) the Design-Builder shall furnish and install a NEMA TS2 type 2 traffic signal controller and its cabinet. The Design-Builder shall also furnish and install a ~~state-supplied~~ disconnect/ generator transfer switch with the meter channel, on the signal pole to which the cabinet has been mounted to. The electrical disconnect/generator transfer switch shall be installed underneath the meter. The cabinet and disconnect switch shall meet the requirements of Special Specifications 680.80324515 and 680.94997008, respectively. The Design-Builder shall notify the Regional Traffic Safety and Mobility Group two (2) weeks in advance of the requested date for the microcomputer cabinet and electrical disconnect/generator transfer switch for the intersection. Additionally, at the time of the request for the cabinet, the Design-Builder shall provide the design plans (deliverables) so the controller can be programmed in advance by NYSDOT for the new traffic signal(s).

The controller cabinet shall only be banded to the pole at both the top and bottom brackets. Welding shall not be allowed. For a ground mounted cabinet, the bolt diameter connecting the base to the concrete shall be ¾ inch. The mounting height for the microcomputer cabinet shall be increased to 24 inches. The Design-Builder shall request permission from the NYSDOT Traffic Signal Maintenance at (315) 428-4064 to enter any existing traffic signal controller cabinets or

- I-481 NB before Exit 4 (I-690) approximate satiation R6B 127+50, near mm 5.56, approximate coordinates, 43.0427, -76.0517

All equipment removed shall be salvaged to the Region 3 Signal Shop, 143 Sand Rd, Syracuse, NY.

Equipment damaged as a result of improper removal or handling of any of the components shall be replaced with new in-kind equipment at the Design-Builder's expense.

18.3.1.2 Installation of New VMS

The Design-Builder shall furnish and install two (2) new 3 Line-18 Character Full Matrix LED Dynamic Message Sign Assemblies (VMS) and all related installations and equipment for the operation of the sign. The VMS shall meet or exceed the requirements for the associated item number listed in the Device Requirements Table. The communications from the roadside cabinet to the sign shall be over fiber optic link.

The newly installed shall be located in the general area of the existing VMS being removed at the following locations:

- I-481 NB before Exit 2 (Jamesville Rd) near mm 1.28 – approximate coordinates 43.0040, -76.1046
- I-481 NB before Exit 4 (I-690) approximate satiation R6B 127+50, near mm 5.56, approximate coordinates, 43.0427, -76.0517

All areas shall be cleared of trees and brush and be located on a flat surface. Adequate sight distance shall also be verified in the field before determining a final location.

The Design-Builder shall confirm the final VMS and cabinet locations with the Regional ITS Maintenance Staff before installing.

Training shall be provided for all equipment, including software.

18.3.2 Cameras

18.3.2.1 Removal of Existing Camera

Four (4) existing cameras will be removed as part of this contract. They shall be removed by qualified technicians. The removal shall include the pole, lowering arm, radio equipment, cabinets, and all electronics. Regional ITS Maintenance Staff shall determine which equipment shall be returned to the Department.

The removals are located at the following locations:

- I-481 NB north of Exit 1 (Rock Cut Rd) near mm 0.24, approximate coordinates 43.0071, -76.1253
- I-481 NB north of Exit 1 (Storage Yard) near mm 1.29, approximate coordinates 43.0039, -76.1041
- I-481 NB north of Exit 3 (Lyndon) near mm 4.85, approximate coordinates 43.0337, -76.0589
- I-481 NB south of Exit 4 (Kinne) approximate ~~satiation~~ station R6B 127+50, near mm 5.57, approximate coordinates 43.0428, -76.0514

c. Pavement milling, resurfacing and widening shall be constructed during night hours.

~~c.~~d. The existing Southbound ramp must remain open to traffic at all times until the new Southbound exit is open to traffic.

D. Route 5/92 (E. Genesee St)

a. Between Jamesville Rd and the junction of NY5 at “Lyndon Corners” one lane of traffic must be maintained between 10PM and 7AM in the Eastbound Direction. One lane of traffic must be maintained between 9PM and 6AM in the Westbound direction. No lane closures allowed outside of these hours.

b. Between the junction of NY5 at “Lyndon Corners” and Woodchuck Hill Rd, one lane of traffic must be maintained in each direction between 10AM and 3PM and between 7PM and 9PM. No lane or shoulder closure are allowed between 6AM-10AM and between 3PM and 7PM as noted in the table below.

E. East Brighton Ave

a. Two (2) lanes of traffic in each direction shall be maintained at all times.

F. East Glen Ave

a. The existing East Glen Ae Bridge must remain open to two-way traffic at all times until the new bridge is open to traffic.

b. Full access to the Loretto facility shall be maintained at all times except for short term closures upon advance notification to the facility

19.3.2 Work Zone Traffic Control Plan

The Design-Builder shall prepare and submit a WZTC Plan for managing traffic operations and controlling access until Project Completion. A WZTC Plan must be submitted in advance of any work that restricts the roadway cross section and includes durations and traffic pattern changes that will exceed 10 hours in any 24-hour period.

The WZTC Plan shall be submitted to the Department’s Design Quality Assurance Engineer a minimum of two weeks prior to initiation of any Work requiring a lane closure or the implementation of any change in traffic patterns.

The WZTC Plan shall include:

A) Contingency plans for reasonable unforeseen interruptions;

B) Duration of each WZTC stage, including duration of lane closure(s), if any;

C) Provisions for maintaining pedestrian traffic through the Project area at all times at all locations where pedestrian access through the Project area currently exists, if applicable.

D) Use of temporary signals for WZTC staging and/or phasing shall be provided in the WZTC plans (IE: signal plan, operation, timing, phasing, detection, etc.).

E) There shall be a 1 foot minimum offset from the roadway edge line to TCB or other barriers.

Stormwater shall be conveyed from point to point through the use of a single pipe. Smaller pipes in parallel shall not be permitted.

21.3 REQUIREMENTS

21.3.1 Drainage Report

The Design-Builder shall provide a Drainage Report to the Department and any other entities whose facilities will be impacted by the Project in accordance with HDM Chapter 8. The Design-Builder shall be responsible for coordination in advance with any third party to determine the necessary document submission required by the third party. At least two weeks prior to providing documents to any third party, the Design-Builder shall submit a draft Drainage Report to the Department's Design Quality Assurance Engineer for consultation and written comment.

The Drainage Report shall document the design criteria used, final design basis, and all supporting calculations and computer model output.

~~On the west side of I-81, between approximate Station H3 102+00 and STA 129+00, the Design-Builder shall develop a drainage plan that demonstrates that under the build condition, the amount of runoff that flows down the I-81 embankment and flows across the westernmost highway boundary will result in a minimum 5% reduction from the existing condition.~~

21.3.2 Southern Interchange Drainage

Temporary and permanent drainage systems shall be designed and constructed to capture ~~all~~ runoff and prevent ground surface infiltration in the Southern Interchange/~~karst areas to prevent sinkhole formation.~~

100% of the surface runoff that contributes to the roadside ditches and drainage channels within the Southern Interchange Impervious Drainage Limits shall be routed to the existing 6-foot diameter concrete culvert, CIN C330114 (inlet located approximately 315 feet south of the existing East Glen Avenue bridge). All drainage ditches, channels, and stone protection areas at culvert inlets and outlets shall be designed to be impervious. Refer to RFP Part 7 – Engineering Data for the Southern Interchange Impervious Drainage Limits and the Potential Existing Sinkhole Area of Concern. Refer to the Geotechnical Data Report, posted as a Reference Document on the project website, for additional information regarding potential karst sinkholes in the identified Potential Existing Sinkhole Area of Concern.

The Design-Builder shall evaluate the capacity of the existing 6-foot diameter concrete culvert, CIN C330114, and determine adequacy for a 25-year design storm. If required, the Design-Builder shall design an impervious detention pond to control the discharge from the Southern Interchange drainage area such that the capacity of the existing outlet culvert is not exceeded.

On the west side of I-81, south of STA H3 129+00, the Design-Builder shall develop a drainage plan that demonstrates that under the build condition, the amount of runoff that flows down the I-81 embankment and flows across the westernmost highway boundary will result in a minimum 5% reduction from the existing condition.

21.3.3 Video Inspection

The Design-Builder shall perform a video inspection on existing underground drainage facilities that are to remain within the limits of pavement reconstruction as noted in Section 22, and a post-construction video inspection of the functioning underground drainage facilities after all drainage construction work is completed. The inspection shall include all drainage facilities up to the nearest downstream structure beyond the project limits.

21.3.4 Connections to Existing Systems

The Design-Builder shall develop Design Plans and Project Specifications for any connections to existing storm systems. The Design-Builder shall be responsible for calculations performed to ensure there is sufficient capacity to accommodate any increase in flow due to changes in drainage catchment area and/or to land use. This paragraph shall not be construed to relieve the Design-Builder of the obligation to treat runoff water that requires treatment.

For all reconstructed median areas, existing median barrier drainage openings shall be eliminated and replaced with new drainage connections meeting current standards.

21.3.5 Spill Management

Spill prevention and response measures shall be described in the SWPPP.

21.4 DELIVERABLES

Deliverables shall be as stated elsewhere in the RFP documents.

Horizontal wall joints beyond those shown in Part 6 – Directive Plans are acceptable for typical noise barriers taller than 20'-0.

~~Existing Noise Barriers shall be removed as noted in Part 6 – Directive Plans.~~

26.2.1 Noise Analysis

The Design-Builder shall be responsible for complying with the following requirements for the Final Traffic Noise Analysis.

All proposers must provide the following with their technical proposal:

The Proposer must provide a noise abatement justification memo with their bid. The noise abatement justification memo shall include:

1. A statement indicating any significant proposed Design-Builder changes to Recommended Noise Barriers, and any significant proposed Design-Builder changes to the preferred alternative roadways. Significant proposed changes are defined as:

    a. Changes in the plan location of Recommended Noise Barriers that differ by more than 10 feet from the Part 6 – Directive Plans at any point along their plan alignment.

    b. Changes to the existing ground elevations along the Noise Barrier alignments by more than 6 inches.

    c. Changes in horizontal roadway alignments of up to 10 feet from the Directive drawings at any point along the alignment.

    d. Changes in vertical roadway alignments of up to 6 inches from the Indicative drawings at any point along the alignment.

2. A statement that median or edge of shoulder concrete barriers, if added to the project, will not be included as noise abatement measures.

3. A statement regarding the likelihood that the Design-Builder's proposed design would create new traffic noise impacts to receptors previously determined from the preliminary Noise Analysis to be not impacted, and thus require a NEPA reevaluation.

Post award, the Design-Builder is required to:

1. Use TNM 2.5 to prepare a Final Noise Barrier analysis using the preliminary noise barrier analysis resulting in updated TNM 2.5 acoustical models (one each for Recommended Noise Barrier) provided to prospective bidders, whether or not changes are made to any roadways or to any noise barriers identified on the directive drawings. The Design-Builder shall adjust, run, and debug the Optimized Noise Barrier analyses to accurately represent the Design-Builder's proposed design. If a NEPA reevaluation is not

SECTION 28 RAILROAD DESIGN

28.1 STANDARDS

28.1.1 CSX Rail Yard

CSXT current design and construction standards, clearance requirements, insurance requirements, and sample Preliminary Engineering and Construction Agreements are in the CSXT Public Project Information for Construction and Improvement Projects That May Involve the Railroad. The document can be downloaded at the following URL: ~~https://www.csx.com/index.cfm/library/files/about-us/property/public-projectmanual/~~ https://www.csx.com/index.cfm/library/files/about-us/property/public-project-manual/

28.1.2 CSX Intermodal Rail Yard

Criteria as outlined in *Standard Specifications of the Design and Construction of Private Sidetracks* as published by CSX.

28.2 REQUIREMENTS

28.2.1 Railroad Right of Way – Right of Entry

The Design-Builder shall adhere to CSXT requirements for design and construction including:

A. CSXT Public Project Manual – The Design-Builder should be aware the Appendix sections on Construction Submission Criteria, Drainage Criteria, and various safety requirements are all requirements during construction of this project.

B. CSXT Design and Construction Standard Specifications for Pipeline Occupancies – This document is referenced in the CSXT Drainage Criteria in the CSXT Public Project Manual and includes design requirements for pipe materials for any proposed under track drainage.

C. CSXT Standard Clearance Matrix and CSXT Clearance Diagram – This document includes clearance considerations for the temporary platform and any other proposed temporary features.

D. Specification Section 34 11 26.13 – Ballast - Ballast used for track owned or operated by CSXT shall be provided from an approved CSXT ballast supplier and meet CSXT ballast material requirements.

The Coordination requirements for working with CSXT are as follows:

A. The Design-Builder shall prepare site-specific work plans for review and approval by CSXT before commencing work when any part of the equipment used in conducting the work is within 25 feet of the live tracks.

B. The Design-Builder shall submit site-specific work plans covering all work that is within 25 feet of any track or work that has the potential to foul the track. The potential to foul is any work having the possibility of impacting CSXT property or operations; defined as one or more of the following:

1. Any activity where access onto CSXT property is required.

Specification Section	Risk Factor, applications, and hold points	• Quality Assurance Actions and Testing
560 - Masonry	▪ RF-3	• Materials QA: plant QC/QA program per Materials Procedure 09-03 for block items. Verify masonry cement type is correct, and approved • CI QA: Random verification of adherence to all specification construction requirements. Verify dovetail anchor locations / spacing for every 1000 sf wall placed.
563 – Prestressed Concrete Units (Structural)	▪ RF-2 when DB is responsible for plant operations. ▪ RF does not apply when DOT performs materials sampling and testing for acceptance purposes at off-site fabrication sites.	• Materials QA: Precast production off-site per the PCCM. The Design-Builder will progress any necessary shop drawings and perform QC and QA as defined in the PCCM. The Department will perform the requirements of the PCCM at ~~25%~~100% of the defined QA requirements to verify conformance with specifications. • CI QA: Verify erection per PCCM.
564, Structural Steel	▪ RF-2 when DB is responsible for plant operations. ▪ RF does not apply when DOT performs materials sampling and testing for acceptance purposes at off-site fabrication sites.	• Materials QA: Steel fabrication off-site per the SCM. The Design-Builder will progress any necessary shop drawings and perform QC as defined in the SCM. The Department will perform the requirements of the SCM at 25% of the defined QC requirements to verify conformance with specifications. Other materials conformance per various 700 section requirements. • CI QA: Verify erection per SCM. Observe field repairs to paint damaged during erection performed according to Section 572.
565, Bridge Bearings	RF-2 ▪ Hold point: Installation shall only progress after receipt of BR-195.	• Materials QA: Verify Bearing manufacturer on Approved List. Department review of manufacturers sampling and testing data. 10% of the produced lots will be sampled and tested by the Department for verification per sections 716-06, 716-07, 716-11, 716-12 or Special Specification requirements. • CI QA: Verify BR-195 and inspection stamps inspected at jobsite.

- Crossing Business Loop 81 at Station R2A 46+75 and crossing the new on and off ramps located on the north side of the East Glen Bridge

Aerial facilities at the following locations on I-481, I-690 to Kirkville Road:

- Crossing under I-481 northbound and southbound bridges over CSX Railroad located at Station H6A 32+25 and H6C 39+48

Aerial facilities at the following locations on I-481, E. Genesee Street Interchange:

- Crossing I-481 Northbound at Station R6B 124+03
- Crossing I-481 south of Kinne Road at Station R6B 128+47
- Crossing I-481 north of Kinne Road at Station R6B 129+71
- Crossing I-481 Northbound from Station R6B 128+50 to Station R6B 134+00 on the eastern side of highway
- Crossing I-481 Southbound from Station R6B 128+50 to Station R6B 134+00 on the western side of highway
- Crossing I-481 at Station R6B 134+10
- Crossing I-481 Southbound from Station R6A 35+00 to Station 27+00 at the western side of the southbound off ramp.
- Along the south sides of Routes 5 & 92 from Station S6A 8+50 to Station S6A 11+00
- Along the south sides of Routes 5 & 92 from Station S6A 11+00 to Station S6A 23+00
- Crossing Routes 5 & 92 at Station S6A 15+00
- The facilities that cross the highway are 115 KV and 345 KV high voltage lines. National Grid will need 24 hour/ 7 day a week access to these lines.
- Crossing Routes 5 & 92 at Station S6C 102+60
- Along the south sides of Routes 5 & 92 from Station S6C 100+80 to Station S6C 107+80
- Crossing Route 92 from Station S6C 107+80 to Station S6C 110+50
- Along the north sides of Routes 5 & 92 from Station S6C 110+50 to Station S6C 120+00

Underground facilities at the following locations on I-81 / I-481 South Interchange:

- Two lines crossing I-81 approximately at Station R3A 93+50 by E. Seneca Turnpike
- Crossing I-81 Southbound from Station R3A 125+50 to Station R3A 144+00

A-2.6 Utility Service Connections

List any utility services / connections of concern.

A-2.7 Street Lighting

A-2.7.1 Town of Dewitt

Street Lighting located at NYS Route 5 and NYS Route 92 interchange

- Street lighting located at station S6A12+40 RT to S6A 19+20 LT.

Street Lighting located at NYS Route 5 and NYS Route 92 intersection (Lyndon Corners)

- Street lighting located in the Lyndon Corners area S6C 101+00 to 109+00 RT.

A-2.7.2 City of Syracuse

Street lighting located at the I-481/ I-81 interchange.

A-3 UTILITY RELOCATIONS BY OTHERS

The Design-Builder shall be aware that all time frames for utility relocation work presented in this section are approximate and are predicated on the assumption of a single relocation to the new, permanent utility locations. Should the Design-Builder's design, means and methods require interim utility relocations, the Design-Builder shall be responsible for coordinating with the affected utilities to determine the time frames required for any and all interim relocations.

A-3.1 Telecommunications

A-3.1.1 Verizon of New York

Aerial facilities in conflict at following locations on I-481, I-690 to Kirkville Road

- Verizon will install its facilities underground and remove their aerial lines that are located along Manlius Center Road, crossing under I-481 bridges at approximately Station H6A 14+50. Verizon will need 2 to 3 months to do this work.

Aerial facilities in conflict at following locations on I-481, Routes 5 & 92 Interchange, Lyndon Corners

- Verizon will relocate aerial facilities located along Routes 5 and 92 from Station S6A 10+00 to Station S6A 11+00. Verizon will need 4 months to do work at this location.

- Verizon will relocate aerial facilities located along Routes 5 and 92 from Station S6C 102+40 to Station S6C 105+00. Verizon will need 2 to 3 weeks to transfer their lines and execute pole removals in this area.

Underground facilities in conflict at following locations on I-81 / I-481 South Interchange:

- Verizon will relocate its Duct Bank that is located over I-81 on E. Glen bridge crossing at approximately Station R2A 46+00. Verizon will need 2 to 3 months to do the relocation work at this location. Verizon will relocate their new lines to the new East Glen bridge which will be located south of the existing bridge.

A-3.1.2 Charter Communications

Aerial cable TV lines in conflict at following locations on I-81 / I-481 South Interchange:

- Charter will relocate lines adjacent to Brighton Ave, approximately at Station S4D 107+40 to S4D 102+25. Charter will take 8 weeks to complete their work at this location.

Aerial cable TV lines in conflict at following locations on I-481, I-690 to Kirkville Road:

- Charter will install its facilities underground and remove their aerial lines that are located along Manlius Center Road, crossing under I-481 bridges at approximately Station H6A 14+50. Charter will take one month to complete the work at this location.

Aerial cable TV lines in conflict at following locations on I-481, Routes 5 & 92 Interchange, Lyndon Corners:

- ~~Charter will relocate aerial facilities located along Routes 5 and 92 from Station S6A 10+00 to Station S6A 11+00~~
- Charter will relocate aerial facilities located along Routes 5 and 92 from Station S6C 101+00 to Station 107+50. Charter will take 2 weeks to complete the relocation work at this location.

A-3.1.3 Windstream Communications

Aerial Communications Lines location on RT 5 & 92 at Lyndon Corners:

- Relocate facilities from Station S6C 101+00 to 107+50 RT

A-3.2 Electric

A-3.2.1 National Grid Electric

Aerial facilities in conflict at the following locations on I-81 / I-481 South Interchange

- National Grid will relocate aerial facilities crossing I-481 along the west side of East Brighton Avenue Bridge from Station S4D 104+75 to Station S4D 119+50
- National Grid will relocate aerial facilities crossing East Brighton Avenue at Station S4C 104+25
- National Grid will relocate aerial facilities crossing relocated East Glen Road at Station S4B 10+50
- National Grid will relocate aerial facilities crossing Business Loop 81 at Station R2A 46+75 and crossing the new on and off ramps located on the north side of the East Glen Bridge
- National Grid will need 6 weeks to do their work in these areas

Aerial facilities in conflict at the following locations on I-481, I-690 to Kirkville Road:

- National Grid will relocate its aerial facilities currently crossing under I-481 northbound and southbound bridges over CSX Railroad located at Station H6A 32+25 and H6C 39+48 to underground. National Grid will also relocate two poles. National Grid will need 4 weeks to complete their work at this location.

Aerial facilities in conflict at the following locations on I-481, E. Genesee Street Interchange:

- National Grid will relocate aerial facilities and two poles located along the south sides of Routes 5 & 92 from Station S6A 10+00 to Station S6A 11+00
- National Grid will relocate aerial facilities crossing Routes 5 & 92 at Station S6C 102+60
- National Grid will relocate aerial facilities and three poles located along the south sides of Routes 5 & 92 from Station S6C 102+40 to Station S6C 105+00
- National Grid will need 2 weeks to complete their work at these locations.

Underground facilities in conflict at the following locations on I-81 / I-481 South Interchange:

- National Grid will relocate underground facilities located crossing I-81 Southbound from Station R3A 125+50 to Station R3A 144+00
- National Grid will relocate underground facilities located crossing I-81 Northbound from Station R2A 52+40 to Station R2A 73+75
- National Grid will need 2 weeks to complete their relocation work at these locations.

A-3.3 Natural Gas

A-3.3.1 National Grid

Gas facilities in conflict at the following locations on I-81 / I-481 South Interchange:

- National Grid will relocate their gas facilities crossing I-81 along E. Glen Avenue at approximately Station R3A 119+25. National Grid will need 6 weeks to complete their work at this location.
- National Grid will relocate their gas facilities located along E. Brighton Ave. at Station S4D 119+00
- National Grid will need 6 weeks to complete the work at these locations.

Gas facilities in conflict at the following locations on I-481 / E. Genesee Street Interchange

- ~~National Grid will relocate their gas facilities located along the southern side of Routes 5 & 92 from Station S6A 8+50 to Station S6A 10+75~~
- National Grid will relocate their gas facilities located along the southern side of Routes 5 & 92 from Station S6C 101+22 to Station S6C 109+50. National Grid will need 2 to 3 weeks to relocate facilities at this location.
- National Grid will cut and cap and therefore abandon~~relocate~~ their gas facilities located along the southern side of Routes 5 & 92 from Station S6C 113+00 to Station S6C 113+90. National Grid will need 1 day to complete their work at this location.

A-4.5 Sanitary

A-4.5.1 Onondaga County Department of Water Environment Protection (OCDWEP)

Storm Sewer facilities in conflict located on I-481, E. Genesee Street – Kirkville Road

- Design-Builder will relocate a 24” Storm sewer along Interstate 481 at Stations H6A 21+40 to H6A 22+20
- Design-Builder will relocate a 24” Storm sewer crossing I-481 Southbound at Station H6E 12+29
- Design-Builder will relocate a 24” Storm sewer crossing I-481 Southbound at Station H6E 25+15 LT
- Design-Builder will relocate a 3’x5’ Storm sewer consisting of twin pipes crossing I-481 Southbound at Station H6E 23+10
- Design-Builder will relocate a Storm sewer crossing I-481 Northbound at Station H6B 14+42, unknown size

Storm Sewer facilities in conflict located at I-481 / East Genesee Street Interchange

- Design-Builder will relocate Various Storm Sewers located within the Exit 3 Interchange

Storm Sewer facilities in conflict located at I-81 / I-481 Southern Interchange

- Design-Builder will relocate Various Storm Sewers located throughout the Southern Interchange
- Design-Builder will relocate a 24” Sanitary Sewer crossing I-81 Northbound at Station R2A 63+50

Sanitary Sewer facilities in conflict located on I-481 between I-690 and Kirkville Road

- Design-Builder will relocate a 10” Sanitary Sewer crossing under I-481 Northbound and Southbound bridges over CSX rail yard located at Station H6A 33+40

A-4.5.2 City of Syracuse (Sanitary)

No utility relocation work anticipated.

A-4.6 Street Lighting

A-4.6.1 Town of Dewitt

Street lighting in conflict located at the NYS Route 5 and NYS Route 92 interchange

- The Design-Builder will relocate 7 street lights from station S6C 12+40 RT to S6C S6A 19+20 LT.

Street lighting in conflict located at NYS Route 5 and NYS Route 92 Intersection (Lyndon Corners)

- The Design-Builder will relocate 2 street light poles from station S6C +/- 105+00 to 107+75.

A-4.6.2 City of Syracuse

Street lighting facilities on Brighton Ave between E. Glen Ave and Rock Cut Road.

- The Design-Builder will relocate 13 poles on Brighton Ave from E. Glen Ave to Rock Cut Road.

A-5 DESIGN BUILD UTILITY DOCUMENTS

The Design-Builder shall provide documentation regarding the coordination and locations of the impacted utilities to the Department's Project Manager, and the Department's Project Manager shall coordinate with Regional Utility Engineer. The required documents are: utility conflict/resolution table with proposed locations, utility plans, and Special Note of Utility Coordination.

The documentation shall be used to secure the Final DB Utility Work Agreements (DB-HC140) with each impacted utility company and any required Municipal Agreements.

The following activities, durations, and relationships shall be incorporated into the Progress Schedule:

Activity ID	Activity Description	Duration	Follows	Logic Tie	Responsible Party
M00001	Proposal Due Date	0 – Start Milestone	----	--	Design Builder
C00020	Selection of Best Value	See contract documents	M00001	FS	NYSDOT
C00035	Notification to Proceed (NTP)	0 – Finish Milestone	C00020	FF	NYSDOT
~~C00036~~	~~Get Start Meetings~~	~~1 Work Day~~	~~C00035~~	~~FS~~	~~NYSDOT~~
C00005	Pre-work Conference	1 Work Day	C00035	FS	NYSDOT
C00040	Prepare/Submit Safety & Health Plan	Minimum 1 Work Day	C00035	FS	Design Builder
C00045	Review & Accept Safety & Health Plan	10 Work Days	C00040	FS	NYSDOT
C00055	Set Up Engineer's Field Office	10 Work Days	C00035	FS	Design Builder
M00500	Design-Builder's First Day of Construction Work	0 - Start Milestone	C00055, C00045	FS	Design Builder
C00060	Prepare & Submit Baseline Progress Schedule	10 Work Days from receipt of NTP	C00035 C00005	FS FS/FF	Design Builder
C00065	Review Baseline Progress Schedule	10 Work Days	C00060	FS	NYSDOT
C00070	Accept Baseline Progress Schedule	1 Work Days	C00065	FS	NYSDOT
C00075	Mobilization	Minimum 10 Work Days	M00050	SS	Design Builder
M00100	Field Work Begins	0 - Start Milestone	C00055, C00070, C00075, M00500	~~FS~~ SS	Design Builder
M00900	Substantial Completion	0 - Finish Milestone	See contract documents	FF	Design Builder
C09010	Other Agency Inspection	20 Work Days	M00900	FS	Others
C09020	NYSDOT Inspection	20 Work Days	M00900	FS	NYSDOT

1. Intermittent (1) - Inspection required is based on the item(s) of work and Contractor's means and methods
2. Intermittent (2)-Inspection is required, at a minimum, on a daily basis
3. Intermittent (3)-Inspection is required no less than twice per inspection shift.
4. Continuous – Inspection is required continuously throughout the duration of the operation.

7. **Temporary Work:**

   Prior to the commencement of temporary work, the CQCE and the CQAE in conjunction with the Resident Engineer and Department's PM shall discuss and reach concurrence on the inspection QC and QA requirements for the project and features defined to be of a temporary nature.

8. ~~**Force Account**~~**Extra Work:**

   There will be no consideration of additional payment for CI staff related to Force Account Work unless the minimum number of FTCI staff, as listed in Note 1 of this Special Provision, is exceeded.

DIRECTIVE NOTES

REPLACEMENT BRIDGES

I-81 SB OVER EAST SENECA TURNPIKE BIN: 1031501
BRIDGE NUMBER 1

1-1. The operational classification of this bridge is Essential.
~~1-1.~~1-2. Remove existing superstructure in its entirety and remove existing substructures as required.
~~1-2.~~1-3. Provide a jointless bridge with integral abutments or semi-integral abutments that spans over East Seneca Turnpike.
~~1-3.~~1-4. New structural steel shall conform to ASTM A709 Grade 50; weathering steel is not permitted.
~~1-4.~~1-5. New structural steel shall be metalized and/or galvanized in accordance with Special Specifications 572.00020101 and 564.20010008.
~~1-5.~~1-6. Provide a minimum vertical clearance of 16’-6”.
~~1-6.~~1-7. Single Slope (Half Section) Concrete Bridge Barrier is required along both fascias and shall meet Test Level (TL)-5.
~~1-7.~~1-8. Permanent snow fence shall be attached to the back side of concrete barriers located above the under roadways and shall extend a minimum of 10’-0” beyond the outside edge of the shoulders. PVC coated fence fabric in accordance with NYSDOT Bridge Detail (BD) Sheets shall be used and extend a minimum of 2’-0” above the top of the concrete barrier.

REHABILITATED BRIDGES

I-81 (FORMER I-481) NB OVER ROUTE 290 (MANLIUS CENTER ROAD) BIN: 1093562
BRIDGE NUMBER 17

17-1. The operational classification of this bridge is Essential.
17-2. Provide a minimum vertical clearance of 15’-0” over the Manlius Center Road.
17-3. ~~Remove existing superstructure in its entirety.~~Remove existing superstructure in its entirety and provide a new superstructure.
17-4. New structural steel shall conform to ASTM A709 Grade 50; weathering steel is not permitted.
17-5. New structural steel shall be metalized and/or galvanized in accordance with Special Specifications 572.00020101 and 564.20010008.
17-6. Single Slope (Half Section) Concrete Bridge Barrier is required along both fascias and shall meet Test Level (TL)-5.
17-7. Install snow fencing attached to barriers as required.
17-8. All existing pedestals shall be removed and replaced.
17-9. Existing bearings shall be replaced with new Type E.B. elastomeric expansion bearings.
17-10. Existing abutment backwall shall be removed and replaced as indicated in the semi-integral retrofit detail provided in Part 7 – Engineering Data.
17-11. New approach slabs, sleeper slabs, and expansion joints are required. Expansion joints shall be located at the end of the approach slabs.

17-12. Substructure repairs as indicated in the Directive Plans.

REHABILITATED AND WIDENED BRIDGES

I-81 (FORMER I-481) SB OVER CSX RAILYARD BIN: 1093571 BRIDGE NUMBER 14

14-1. The operational classification of this bridge is Essential.
14-2. Provide a minimum vertical clearance that at least matches the existing vertical clearance.
14-3. Remove existing deck in its entirety.
14-4. Strengthen or replace existing bridge components as necessary to meet all Project Requirements.
14-5. Widen superstructure to accommodate Project Requirements.
14-6. New girders may match the detailing of the existing girders in the cross section.
14-7. New structural steel shall conform to ASTM A709 Grade 50; weathering steel is not permitted
14-8. All existing steel shall be cleaned and painted consistent with Standard Specification Section 573 - Structural Steel Painting: Field Applied - Total Removal.
14-9. All new steel shall be shop painted consistent with Standard Specification Section 572 – Structural Steel Painting: Shop Applied.
14-10. Topcoat paint color of all structural steel shall comply with Aerospace Material Specification Standard 595, AMS-STD-595, #20059.
14-11. All existing bearings shall be removed and replaced.
14-12. All existing pedestals shall be removed and replaced.
14-13. New superstructure slab shall be 8.50 inches thick and shall use stainless steel or chromium steel reinforcement with 2 inches of top cover. The NYSDOT Bridge Manual Section 5.1.5.1 Isotropic Decks, third bullet, is revised such that the total standard deck thickness shall be a minimum of 8.50 inches when stainless steel or chromium steel reinforcement is used.
14-14. Bridge deck on spans over any railroad track shall be full-depth precast panel.
14-15. Install modular expansion deck joints at the south abutment, Pier 4, Pier 7, Pier 11, and the north abutment.
14-16. Install UHPC Link Slabs at Pier 1, Pier 2, Pier 3, Pier 5, Pier 6, Pier 8, Pier 9, Pier 10, Pier 12, Pier 13, and Pier 14.
14-17. Single Slope (Half Section) Concrete Bridge Barrier is required along both fascias and shall meet Test Level (TL)-5.
14-18. Remove existing approach slab and replace with a widened approach slab.
14-19. Substructure repairs as indicated in the Directive Plans.
14-20. Widen existing abutment to accommodate project requirements. Reinforcing steel in the widened abutment shall be epoxy coated.
14-21. A closure pour between the existing concrete abutment and the new concrete abutment widening is required and shall use non-contact laps and be of Ultra-High Performance Concrete or an approved polymer concrete with high electrical resistivity.
14-22. Remove existing wingwalls on the west ends of both abutments as required.

14-23. New wingwalls are required on the west ends of both abutments and shall be founded on piles if they are rigidly attached to the abutment.
14-24. Remove Pier 1, Pier 2, Pier 3, Pier 4, and Pier 5 down to the existing footing and repair and/or strengthen existing footing as necessary.
14-25. Widen the footing for Pier 1, Pier 2, Pier 3, Pier 4, and Pier 5 by extending the footing using epoxy coated steel reinforcement. A closure pour between the existing pier footing and the new pier footing widening is required and shall use non-contact laps and be of Ultra-High Performance Concrete or an approved polymer concrete with high electrical resistivity.
14-26. ~~Construct a solid wall-type pier to accommodate the widened superstructure using stainless steel reinforcing steel. Reinforcing steel that protrudes out of the existing footing into the proposed solid wall-type pier stem shall be cut off and replaced with drilled and grouted stainless steel reinforcing steel.~~Construct either solid wall-type piers or multi-column piers with crashwalls, as required, to accommodate the widened superstructure using stainless steel reinforcement. Reinforcement that protrudes out of the existing footings and into the proposed piers shall be cut off and replaced with drilled and grouted stainless steel reinforcement. Piers shall use either Class HP concrete or lightweight concrete in accordance with Special Specification 555.12010001.
14-27. All remaining piers shall be repaired as indicated in the Directive Plans.
14-28. All remaining piers shall be widened using a footing, column, and pier cap that is not structurally connected to the existing pier.
14-29. Install fencing attached to barriers as required by CSX.

I-81 (FORMER I-481) NB OVER CSX RAILYARD BIN: 1093572
BRIDGE NUMBER 15

15-1. The operational classification of this bridge is Essential.
15-2. Provide a minimum vertical clearance that at least matches the existing vertical clearance.
15-3. Remove existing deck in its entirety.
15-4. Strengthen or replace existing bridge components as necessary to meet all Project Requirements.
15-5. Widen superstructure to accommodate Project Requirements.
15-6. New structural steel shall conform to ASTM A709 Grade 50; weathering steel is not permitted.
15-7. New girders may match the detailing of the existing girders in the cross section.
15-8. All existing steel shall be cleaned and painted consistent with Standard Specification Section 573 - Structural Steel Painting: Field Applied - Total Removal.
15-9. All new steel shall be shop painted consistent with Standard Specification Section 572 – Structural Steel Painting: Shop Applied.
15-10. Topcoat paint color of all structural steel shall comply with Aerospace Material Specification Standard 595, AMS-STD-595, #20059.
15-11. All existing bearings shall be removed and replaced.
15-12. All existing pedestals shall be removed and replaced.
15-13. New superstructure slab shall be 8.50 inches thick and shall use stainless steel or chromium steel reinforcement with 2 inches of top cover. The NYSDOT Bridge Manual

Section 5.1.5.1 Isotropic Decks, third bullet, is revised such that the total standard deck thickness shall be a minimum of 8.50 inches when stainless steel or chromium steel reinforcement is used.

15-14. Bridge deck on spans over any railroad track shall be full-depth precast panel.
15-15. Install modular expansion deck joints at the south abutment, Pier 4, Pier 7, Pier 11, and the north abutment.
15-16. Install UHPC Link Slabs at Pier 1, Pier 2, Pier 3, Pier 5, Pier 6, Pier 8, Pier 9, Pier 10, Pier 12, Pier 13, and Pier 14.
15-17. Single Slope (Half Section) Concrete Bridge Barrier is required along both fascias and shall meet Test Level (TL)-5.
15-18. Remove existing approach slab and replace with a widened approach slab.
15-19. Substructure repairs as indicated in the Directive Plans.
15-20. Widen existing abutment to accommodate project requirements. Reinforcing steel in the widened abutment shall be epoxy coated.
15-21. A closure pour between the existing concrete abutment and the new concrete abutment widening is required and shall use non-contact laps and be of Ultra-High Performance Concrete or an approved polymer concrete with high electrical resistivity.
15-22. Remove existing wingwalls on the west ends of both abutments as required.
15-23. New wingwalls are required on the west ends of both abutments and shall be founded on piles if they are rigidly attached to the abutment.
15-24. Remove Pier 1, Pier 2, Pier 3, Pier 4, and Pier 5 down to the existing footing and repair and/or strengthen existing footing as necessary.
15-25. Widen the footing for Pier 1, Pier 2, Pier 3, Pier 4, and Pier 5 by extending the footing using epoxy coated steel reinforcement. A closure pour between the existing pier footing and the new pier footing widening is required and shall use non-contact laps and be of Ultra-High Performance Concrete or an approved polymer concrete with high electrical resistivity.
15-26. ~~Construct a solid wall-type pier to accommodate the widened superstructure using stainless steel reinforcing steel. Reinforcing steel that protrudes out of the existing footing into the proposed solid wall-type pier stem shall be cut off and replaced with drilled and grouted stainless steel reinforcing steel.~~Construct either solid wall-type piers or multi-column piers with crashwalls, as required, to accommodate the widened superstructure using stainless steel reinforcement. Reinforcement that protrudes out of the existing footings and into the proposed piers shall be cut off and replaced with drilled and grouted stainless steel reinforcement. Piers shall use either Class HP concrete or lightweight concrete in accordance with Special Specification 555.12010001.
15-27. All remaining piers shall be repaired as indicated in the Directive Plans.
15-28. All remaining piers shall be widened using a footing, column, and pier cap that is not structurally connected to the existing pier.
15-29. Install fencing attached to barriers as required by CSX.

I-81 (FORMER I-481) SB OVER ROUTE 290 (MANLIUS CENTER ROAD) BIN: 1093561 BRIDGE NUMBER 16

16-1. The operational classification of this bridge is Essential.
~~16-1.~~16-2. Provide a minimum vertical clearance of 15’-0” over the Manlius Center Road.

~~16-2.~~16-3. ~~Remove existing superstructure in its entirety.~~Remove existing superstructure in its entirety and provide a new widened superstructure at a width that accommodates project requirements.

~~16-3.~~16-4. New structural steel shall conform to ASTM A709 Grade 50; weathering steel is not permitted.

~~16-4.~~16-5. New structural steel shall be metalized and/or galvanized in accordance with Special Specifications 572.00020101 and 564.20010008.

~~16-5.~~16-6. Single Slope (Half Section) Concrete Bridge Barrier is required along both fascias and shall meet Test Level (TL)-5.

~~16-6.~~16-7. Install snow fencing attached to barriers as required.

~~16-7.~~16-8. All existing pedestals shall be removed and replaced.

~~16-8.~~16-9. Existing bearings shall be replaced with new Type E.B. elastomeric expansion bearings.

~~16-9.~~16-10. Existing abutment backwall shall be removed and replaced as indicated in the semi-integral retrofit detail provided in Part 7.

~~16-10.~~16-11. New approach slabs, sleeper slabs, and expansion joints are required. Expansion joints shall be located at the end of the approach slabs.

~~16-11.~~16-12. Substructure repairs as indicated in the Directive Plans.

~~16-12.~~16-13. Widen existing substructures to accommodate project requirements and follow detailing for semi-integral abutments as provided in Part 7.

~~16-13.~~16-14. A closure pour between the existing concrete abutment and the new concrete abutment widening is required and shall use non-contact laps and be of Ultra-High Performance Concrete or an approved polymer concrete with high electrical resistivity.

~~16-14.~~16-15. Remove existing wingwalls on the west ends of both abutments as required.

16-16. New wingwalls are required on the west ends of both abutments and shall be founded on piles if they are rigidly attached to the abutment.

I-81 NB OVER EAST SENECA TURNPIKE BIN: 1031502
BRIDGE NUMBER 18

18-1. The operational classification of this bridge is Essential.

18-2. Remove a minimum of 1.5 in. of concrete from the existing bridge deck and approach slab surfaces using hydro-demolition in accordance with Item 579.03000002.

18-3. Place 40 ft. long #5 epoxy-coated reinforcing bars, centered over the pier and transversely spaced at 4 in. center to center such that there is ¾ in. of cover beneath the UHPC surface.

18-4. Place UHPC over the bridge deck and approach slab surfaces in accordance with Special Specification Item 584.21010001. Note that the UHPC must be places ¼ in. above the required roadway profile and grade to accommodate the required deck grinding.

18-5. Reseal the existing deck joints at the backwalls with a structural joint material, silicone sealant, from the Department's approved list for Item 567.51000016.

18-6. Apply penetrating type protective sealer to all exposed concrete surfaces on the barriers, deck, and prestressed box beams.

18-7. All accessible precast concrete beam continuity diaphragms shall have their deteriorated concrete removed and replaced.

NEW BRIDGES

EAST BRIGHTON AVE. OVER NEW I-81
BRIDGE NUMBER 7

7-1. The operational classification of this bridge is Other.
~~7-1.~~7-2. Remove existing superstructure in its entirety and remove existing substructures as required.
~~7-2.~~7-3. Provide a jointless bridge with integral abutments that spans over BL 81 SB to I-81 NB Ramp, I-81 NB, and I-81 SB.
~~7-3.~~7-4. New structural steel shall conform to ASTM A709 Grade 50; weathering steel is not permitted.
~~7-4.~~7-5. New structural steel shall be metalized and/or galvanized in accordance with Special Specifications 572.00020101 and 564.20010008.
~~7-5.~~7-6. Provide a minimum vertical clearance of 16’-6”.
~~7-6.~~7-7. Vertical Faced Concrete Bridge Barrier is required along both fascias and shall meet Test Level (TL)-4.
~~7-7.~~7-8. Permanent snow fence shall be attached to the back side of concrete barriers located above the under roadways and shall extend a minimum of 10’-0” beyond the outside edge of the shoulders. PVC coated fence fabric in accordance with NYSDOT Bridge Detail (BD) Sheets shall be used and extend a minimum of 2’-0” above the top of the concrete barrier.
~~7-8.~~7-9. Any bridge pier shall be a solid wall-type pier.

BL 81 SB TO I-81 NB RAMP BRIDGE OVER BL 81
BRIDGE NUMBER 8

8-1. The operational classification of this bridge is Essential.
8-2. Provide a jointless bridge with integral or semi-integral abutments that spans over BL 81 NB.
8-3. New structural steel shall conform to ASTM A709 Grade 50; weathering steel is not permitted.
8-4. New structural steel shall be metalized and/or galvanized in accordance with Special Specifications 572.00020101 and 564.20010008.
8-5. Provide a minimum vertical clearance of 16’-6”.
8-6. Single Slope (Half Section) Concrete Bridge Barrier is required along both fascias and shall meet Test Level (TL)-5.
8-7. Permanent snow fence shall be attached to the back side of concrete barriers located above the under roadways and shall extend a minimum of 10’-0” beyond the outside edge of the shoulders. PVC coated fence fabric in accordance with NYSDOT Bridge Detail (BD) Sheets shall be used and extend a minimum of 2’-0” above the top of the concrete barrier.

NEW I-81 NB BRIDGE OVER BL 81 NB
BRIDGE NUMBER 9

9-1. The operational classification of this bridge is Essential.
9-2. Provide a jointless bridge with integral abutments that spans over BL 81 NB.
9-3. New structural steel shall conform to ASTM A709 Grade 50; weathering steel is not permitted.
9-4. New structural steel shall be metalized and/or galvanized in accordance with Special Specifications 572.00020101 and 564.20010008.
9-5. Provide a minimum vertical clearance of 16’-6”.
9-6. Single Slope (Half Section) Concrete Bridge Barrier is required along both fascias and shall meet Test Level (TL)-5.
9-7. Permanent snow fence shall be attached to the back side of concrete barriers located above the under roadways and shall extend a minimum of 10’-0” beyond the outside edge of the shoulders. PVC coated fence fabric in accordance with NYSDOT Bridge Detail (BD) Sheets shall be used and extend a minimum of 2’-0” above the top of the concrete barrier.
9-8. Any bridge pier shall be a solid wall-type pier.

NEW I-81 NB BRIDGE OVER BL 81 SB TO I-81 NB RAMP
BRIDGE NUMBER 10

10-1. The operational classification of this bridge is Essential.
10-2. Provide a jointless bridge with integral abutments that spans over BL 81 SB to I-81 NB Ramp.
10-3. New structural steel shall conform to ASTM A709 Grade 50; weathering steel is not permitted.
10-4. New structural steel shall be metalized and/or galvanized in accordance with Special Specifications 572.00020101 and 564.20010008.
10-5. Provide a minimum vertical clearance of 16’-6”.
10-6. Single Slope (Half Section) Concrete Bridge Barrier is required along both fascias and shall meet Test Level (TL)-5.
10-7. Permanent snow fence shall be attached to the back side of concrete barriers located above the under roadways and shall extend a minimum of 10’-0” beyond the outside edge of the shoulders. PVC coated fence fabric in accordance with NYSDOT Bridge Detail (BD) Sheets shall be used and extend a minimum of 2’-0” above the top of the concrete barrier.
10-8. Any bridge pier shall be a solid wall-type pier.

NEW I-81 SB BRIDGE OVER BL 81 NB AND BL 81 SB TO I-81 NB RAMP
BRIDGE NUMBER 11

11-1. The operational classification of this bridge is Essential.
11-2. Provide a jointless bridge with integral abutments that spans over BL 81 NB and BL 81 SB to I-81 NB Ramp.

11-3. New structural steel shall conform to ASTM A709 Grade 50; weathering steel is not permitted.
11-4. New structural steel shall be metalized and/or galvanized in accordance with Special Specifications 572.00020101 and 564.20010008.
11-5. Provide a minimum vertical clearance of 16’-6”.
11-6. Single Slope (Half Section) Concrete Bridge Barrier is required along both fascias and shall meet Test Level (TL)-5.
11-7. Permanent snow fence shall be attached to the back side of concrete barriers located above the under roadways and shall extend a minimum of 10’-0” beyond the outside edge of the shoulders. PVC coated fence fabric in accordance with NYSDOT Bridge Detail (BD) Sheets shall be used and extend a minimum of 2’-0” above the top of the concrete barrier.
11-8. Any bridge pier shall be a solid wall-type pier.

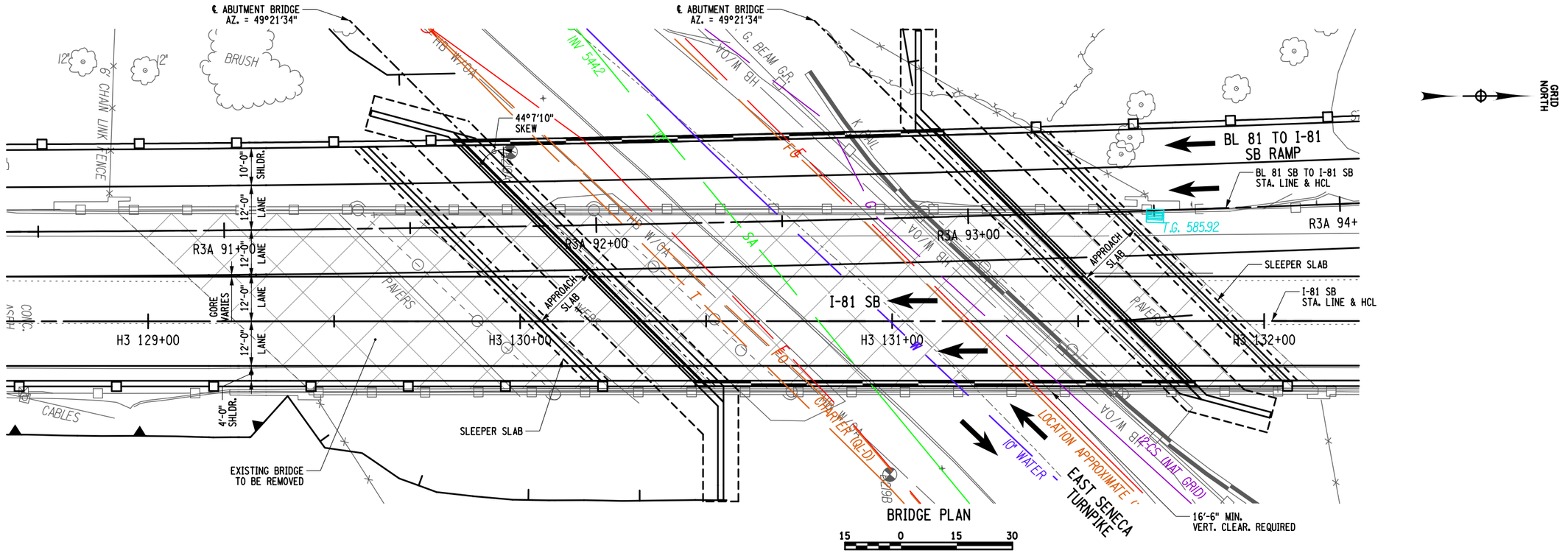
I-81 NB BRIDGE OVER EAST SENECA TURNPIKE
BRIDGE NUMBER 12

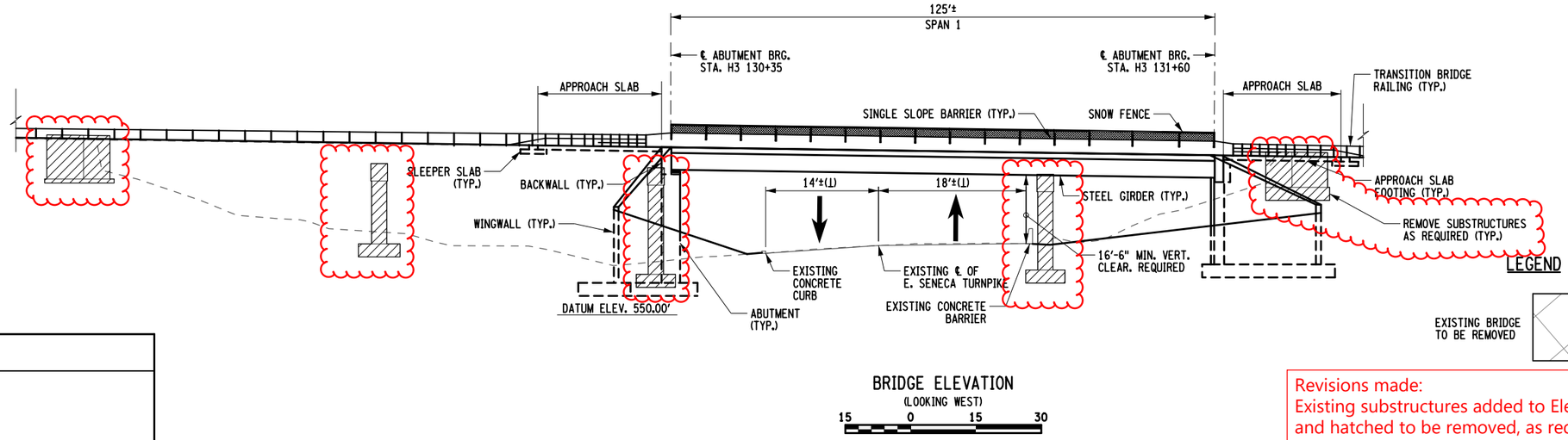
12-1. The operational classification of this bridge is Essential.
12-2. Provide a jointless bridge with integral or semi-integral abutments that spans over East Seneca Turnpike.
12-3. New structural steel shall conform to ASTM A709 Grade 50; weathering steel is not permitted.
12-4. New structural steel shall be metalized and/or galvanized in accordance with Special Specifications 572.00020101 and 564.20010008.
12-5. Provide a minimum vertical clearance of 16’-6”.
12-6. Single Slope (Half Section) Concrete Bridge Barrier is required along both fascias and shall meet Test Level (TL)-5.
12-7. Permanent snow fence shall be attached to the back side of concrete barriers located above the under roadways and shall extend a minimum of 10’-0” beyond the outside edge of the shoulders. PVC coated fence fabric in accordance with NYSDOT Bridge Detail (BD) Sheets shall be used and extend a minimum of 2’-0” above the top of the concrete barrier.
~~12-8. Any bridge pier shall be a solid wall-type pier.~~

RELOCATED EAST GLEN AVENUE OVER BL 81 NB AND BL 81 SB
BRIDGE NUMBER 13

13-1. The operational classification of this bridge is Other.
13-2. Provide a bridge with a fixed frame abutment on one end and a conventional cantilevered abutment on the other end. The fixed frame abutment shall be in accordance with the “Fixed Frame Abutment” details provided in Part 7.
13-3. Provide an armorless joint system at the conventional cantilevered abutment.
13-4. New structural steel shall conform to ASTM A709 Grade 50; weathering steel is not permitted.
13-5. New structural steel shall be metalized and/or galvanized in accordance with Special Specifications 572.00020101 and 564.20010008.

13-6. Provide a minimum vertical clearance of 16’-6”.
13-7. Vertical Faced Concrete Bridge Barrier is required along both fascias and shall meet Test Level (TL)-4.
13-8. Permanent pedestrian fence shall be attached to the back side of concrete. PVC coated fence fabric in accordance with NYSDOT Bridge Detail (BD) Sheets shall be used.
13-9. Provide a repairable approach slab at both abutments.





Revisions made:
Existing substructures added to Elevation View and hatched to be removed, as required.

AFFIX SEAL: ON:	ALTERED BY: ON:

AS-BUILT REVISIONS DESCRIPTION OF ALTERATIONS:	I-81 VIADUCT PROJECT PHASE 1, CONTRACT 2 COUNTY: ONONDAGA REGION: 3	PIN 3501.91	BRIDGES 1031501 (1)	CULVERTS	ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED INDICATIVE PLANS I-81 SOUTHBOUND OVER EAST SENECA TURNPIKE BRIDGE PLAN AND ELEVATION	CONTRACT NUMBER D900056 DRAWING NO. S6-01 SHEET NO.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

PROJECT MANAGER
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JOB MANAGER
DESIGN SUPERVISOR

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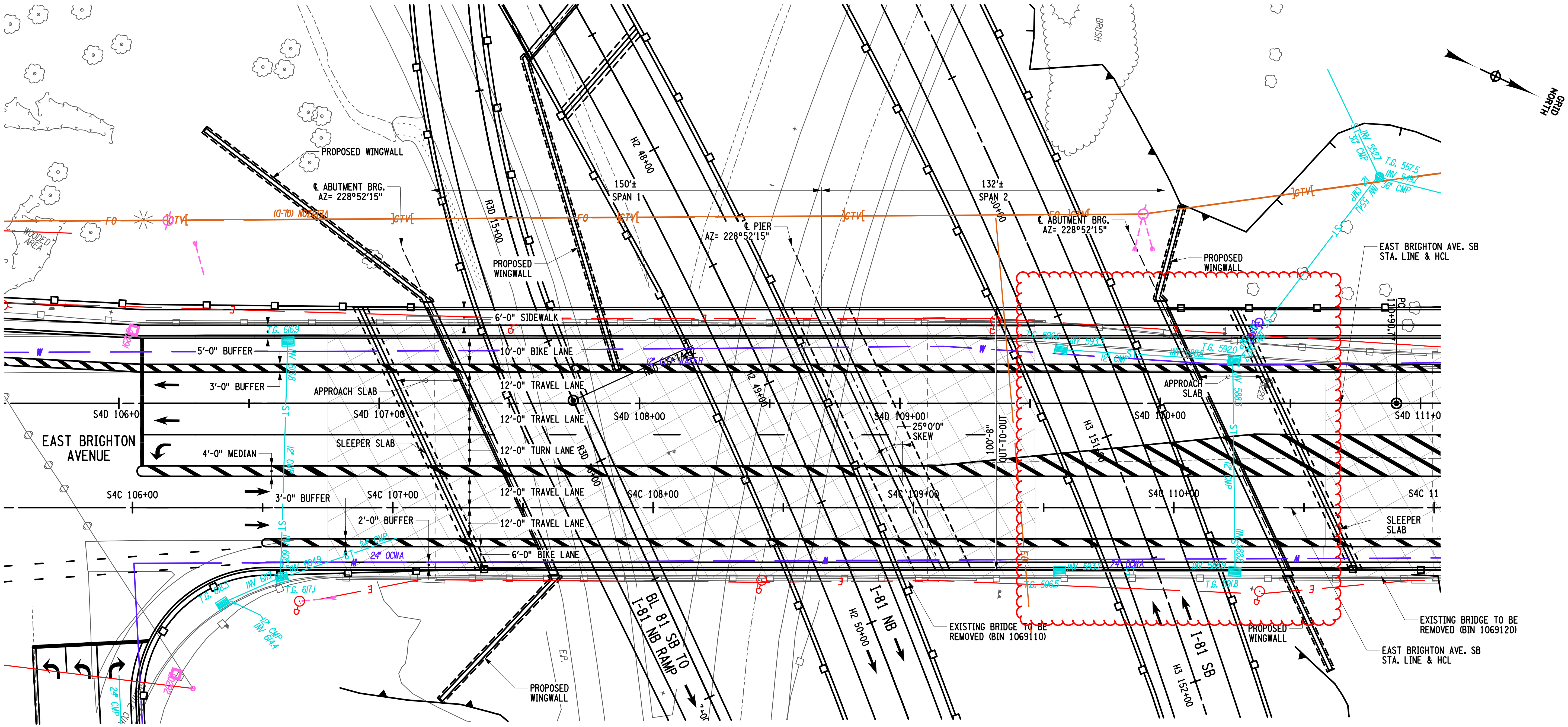


BRIDGE PLAN

20 0 20 40

LEGEND

EXISTING BRIDGE TO BE REMOVED

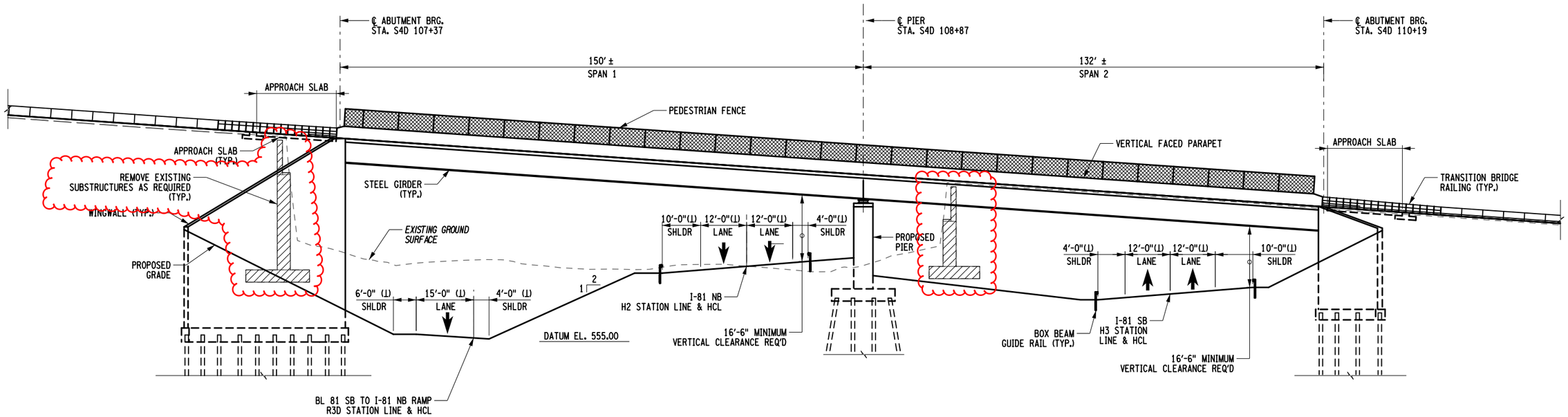
Revisions made:
Hatching Limits of of bridge removal revised.

AFFIX SEAL: ON:	ALTERED BY: ON:

AS-BUILT REVISIONS
DESCRIPTION OF ALTERATIONS:

I-81 VIADUCT PROJECT	PIN 3501.91	BRIDGES SC-1 (07)	CULVERTS	ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED	CONTRACT NUMBER D900056
PHASE 1, CONTRACT 2				INDICATIVE PLANS EAST BRIGHTON AVENUE OVER NEW I-81 BRIDGE PLAN	DRAWING NO. SC1-01
COUNTY: ONONDAGA REGION: 3					SHEET NO.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation



BRIDGE ELEVATION

(LOOKING WEST)

15 0 15 30

Revisions made:
Existing substructures added to Elevation View and hatched to be removed, as required.

AFFIX SEAL: ON:	ALTERED BY: ON:

AS-BUILT REVISIONS DESCRIPTION OF ALTERATIONS:	I-81 VIADUCT PROJECT PHASE 1, CONTRACT 2 COUNTY: ONONDAGA REGION: 3	PIN 3501.91	BRIDGES SC-1 (07)	CULVERTS	ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED INDICATIVE PLANS EAST BRIGHTON AVENUE OVER NEW I-81 BRIDGE ELEVATION	CONTRACT NUMBER D900056 DRAWING NO. SC1-02 SHEET NO.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

PROJECT MANAGER | CHECK | DRAFTING | CHECK | DESIGN | JOB MANAGER | DESIGN SUPERVISOR

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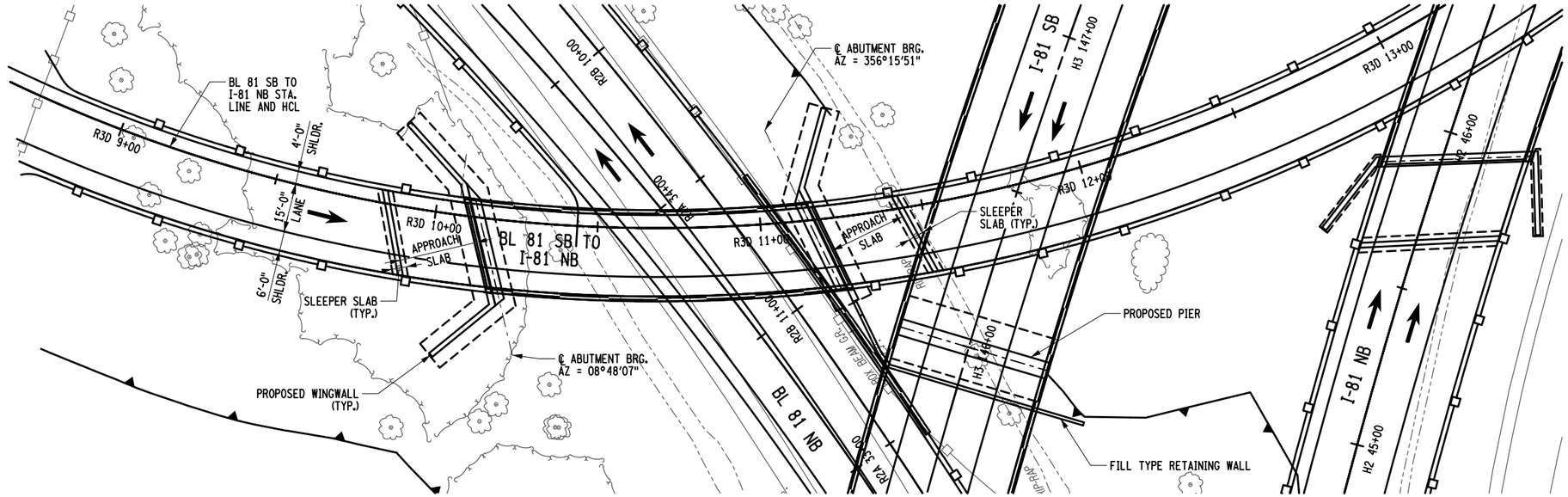

GRID NORTH

BRIDGE PLAN

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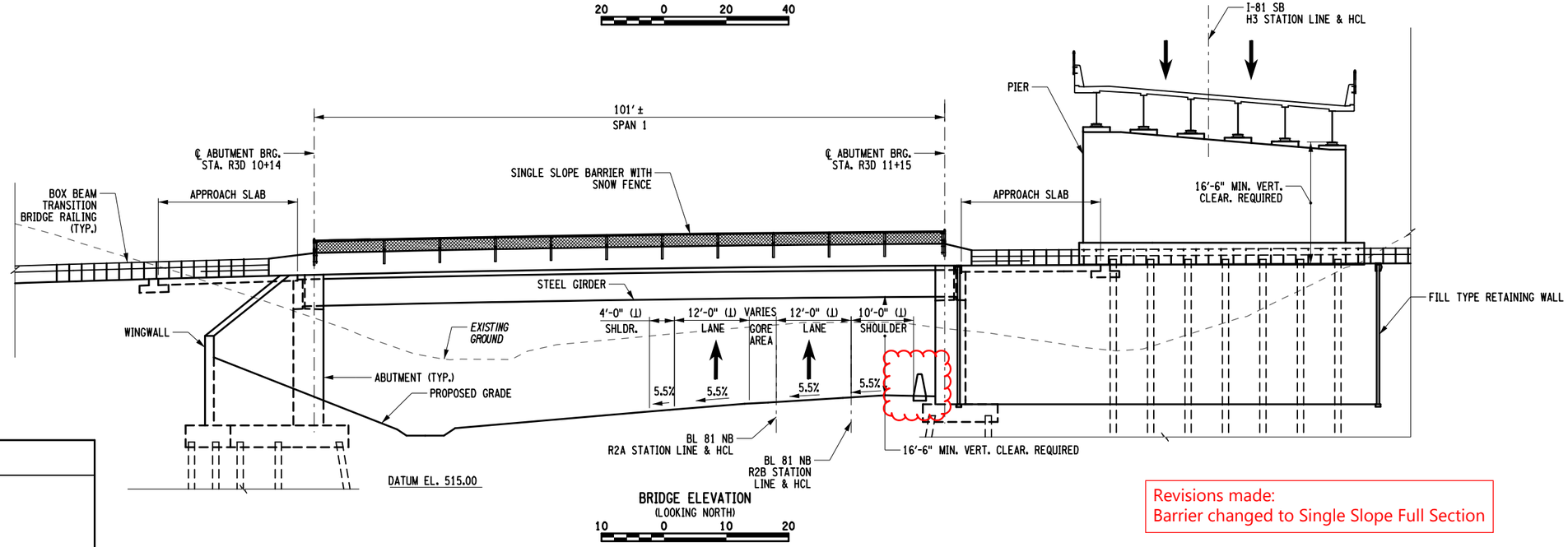

BRIDGE ELEVATION
(LOOKING NORTH)

10 0 10 20

Revisions made:
Barrier changed to Single Slope Full Section

AFFIX SEAL: ON:	ALTERED BY: ON:

AS-BUILT REVISIONS DESCRIPTION OF ALTERATIONS:	I-81 VIADUCT PROJECT PHASE 1, CONTRACT 2 COUNTY: ONONDAGA REGION: 3	PIN 3501.91	BRIDGES SR-2 (08)	CULVERTS	ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED INDICATIVE PLANS BL 81 SB TO I-81 NB RAMP BRIDGE OVER BL 81 BRIDGE PLAN AND ELEVATION	CONTRACT NUMBER D900056 DRAWING NO. SR2-01 SHEET NO.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

PROJECT MANAGER
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DESIGN SUPERVISOR

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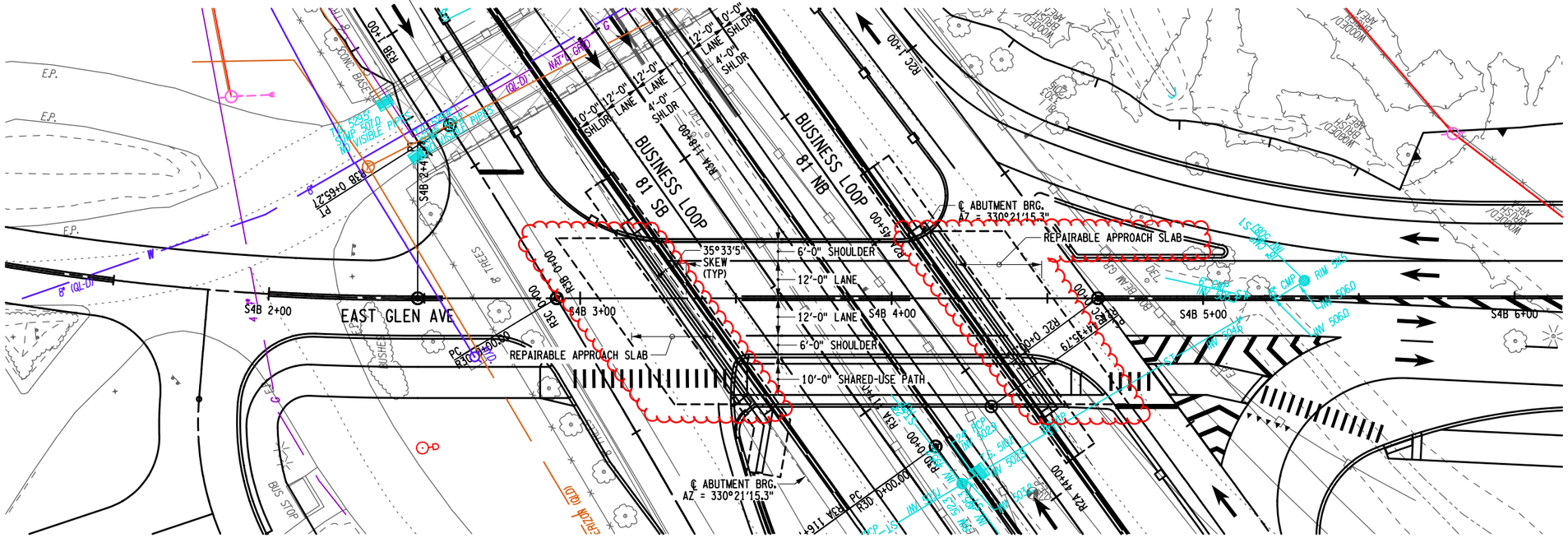
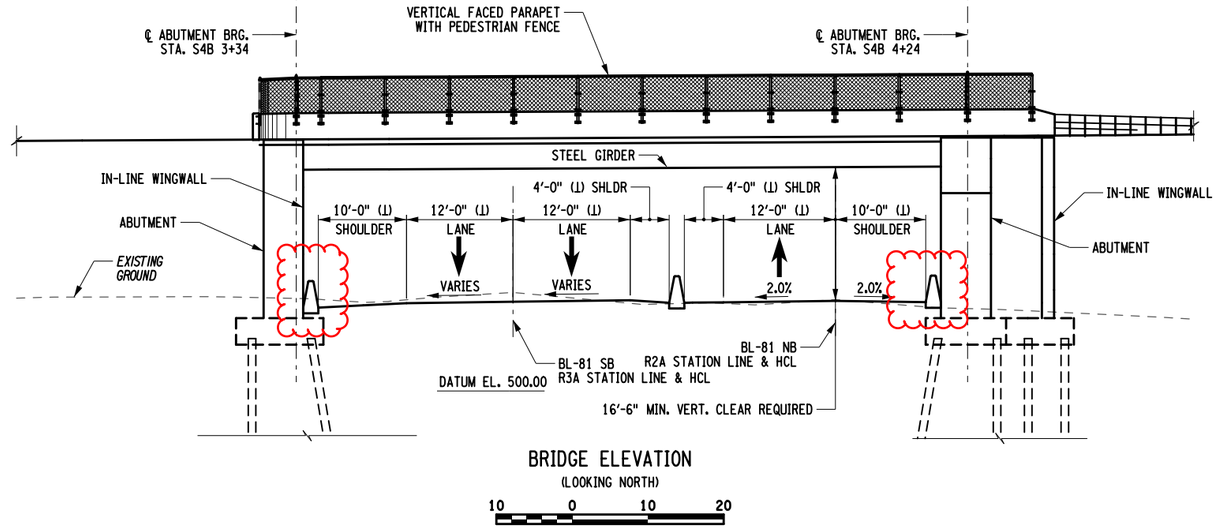


BRIDGE PLAN

40 0 20 40



BRIDGE ELEVATION

(LOOKING NORTH)

10 0 10 20

Revisions made:
Barrier changed to Single Slope Full Section.
Approach Slabs changed to "Repairable Approach Slabs".
Sleeper slabs were removed.

LEGEND

EXISTING BRIDGE TO BE REMOVED

AFFIX SEAL: ON:	ALTERED BY: ON:

AS-BUILT REVISIONS DESCRIPTION OF ALTERATIONS:	I-81 VIADUCT PROJECT PHASE 1, CONTRACT 2 COUNTY: ONONDAGA REGION: 3	PIN 3501.91	BRIDGES S-7 (13)	CULVERTS	ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED INDICATIVE PLANS RELOCATED EAST GLEN AVE OVER BL 81 BRIDGE PLAN AND ELEVATION	CONTRACT NUMBER D900056 DRAWING NO. S7-01 SHEET NO.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

PROJECT MANAGER
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JOB MANAGER
DESIGN SUPERVISOR

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DATE/TIME = 11/11/2022
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GRID NORTH

85'-0" ℄ TO ℄ BEARINGS
SPAN 1

154'-2" ℄ TO ℄ BEARINGS
SPAN 2

169'-2" ℄ TO ℄ BEARINGS
SPAN 3

REMOVE EXISTING WINGWALL, AS REQUIRED

BIN 1093571

℄ BEARINGS PIER 1
STA. H6C 31+51.44
AZ=253°31'38"

66'-1"

℄ BEARINGS PIER 1
STA. H6C 31+53.44
AZ=253°31'38"

BRIDGE DECK TO BE REPLACED & WIDENED FROM 2 LANES TO 3 LANES

℄ BEARINGS PIER 2
STA. H6C 33+07.61
AZ=253°31'38"

PROPOSED WIDENED SUBSTRUCTURE (TYP)

INSTALL SINGLE SLOPE HALF SECTION CONCRETE BRIDGE BARRIER ON EACH FASCIA

℄ BEARINGS PIER 2
STA. H6C 33+09.61
AZ=253°31'38"

REMOVE EXISTING CONCRETE BRIDGE BARRIER AND RAILING

PROPOSED MODULAR JOINT

APPROACH SLAB

SLEEPER SLAB

℄ BEARINGS BEGIN ABUTMENT
STA. H6C 30+66.44
AZ=253°31'38"

H6C 30+00

H6C 31+00
INSTALL MODULAR JOINT

53' OUT TO OUT

10' SHLD | 12' TRAVEL LANE | 12' TRAVEL LANE | 4' SHLD

H6C 32+00

±17'-0" ℄ TRACK TO PIER

SB I-81 (FORMER SB I-481)

H6C 33+00

H6C 34+00

℄ BEARINGS PIER 3
STA. H6C 34+78.77
AZ=253°31'38"

C

C

85'-0" ℄ TO ℄ BEARINGS
SPAN 1

154'-2" ℄ TO ℄ BEARINGS
SPAN 2

169'-2" ℄ TO ℄ BEARINGS
SPAN 3

REMOVE EXISTING WINGWALL, AS REQUIRED

BIN 1093572

70'-10"

PROPOSED WIDENED SUBSTRUCTURE (TYP)

PROPOSED MODULAR JOINT

APPROACH SLAB

SLEEPER SLAB

℄ BEARINGS BEGIN ABUTMENT
STA. H6A 23+40.80
AZ=253°31'38"

H6A 23+00

53' OUT TO OUT

4' SHLD | 12' TRAVEL LANE | 12' TRAVEL LANE | 10' SHLD

H6A 24+00

H6A 25+00

±17'-0" ℄ TRACK TO PIER

NB I-81 (FORMER NB I-481)

H6A 26+00

H6A 27+00

MATCH TO DWG NO. CSX-02, STA. 34+79

D

D

P.I. H6A 22+43.88

℄ BEARINGS PIER 1
STA. H6A 24+25.80
AZ=253°31'38"

℄ BEARINGS PIER 1
STA. H6A 24+27.80
AZ=253°31'38"

℄ BEARINGS PIER 2
STA. H6A 25+81.96
AZ=253°31'38"

℄ BEARINGS PIER 2
STA. H6A 25+83.96
AZ=253°31'38"

℄ BEARINGS PIER 3
STA. H6A 27+53.13
AZ=253°31'38"

REMOVE EXISTING CONCRETE BRIDGE BARRIER AND RAILING

INSTALL SINGLE SLOPE HALF SECTION CONCRETE BRIDGE BARRIER ON EACH FASCIA

BOX BEAM GIR.

PROPOSED TRANSITION RAILING

INSTALL MODULAR JOINT

BRIDGE DECK TO BE REPLACED & WIDENED FROM 2 LANES TO 3 LANES

PERMANENT EASEMENT

BRUSH

FO

HB W/OA

PE

Revisions made:
Pier 1 proposed type changed to a multi-column pier

20 0 20 40

PLAN

NOTES:

1. SPAN LENGTHS SHOWN ARE BASED ON LOCATION OF PROPOSED HORIZONTAL ALIGNMENTS.
2. AZIMUTHS SHOWN ARE BASED ON RECORD PLAN INFORMATION FROM CONTRACT F.I.S.H. 70-7.

AFFIX SEAL: ON:	ALTERED BY: ON:

AS-BUILT REVISIONS
DESCRIPTION OF ALTERATIONS:

I-81 VIADUCT PROJECT
PHASE 1, CONTRACT 2
COUNTY: ONONDAGA REGION: 3

PIN 3501.91

BRIDGES
1093571 (14)
1093572 (15)

CULVERTS

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

INDICATIVE PLANS
I-81 (FORMER I-481) OVER CSX RAILYARD
GENERAL PLAN

CONTRACT NUMBER
D900056

DRAWING NO. CSX-01
SHEET NO.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

PROJECT MANAGER
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DESIGN SUPERVISOR

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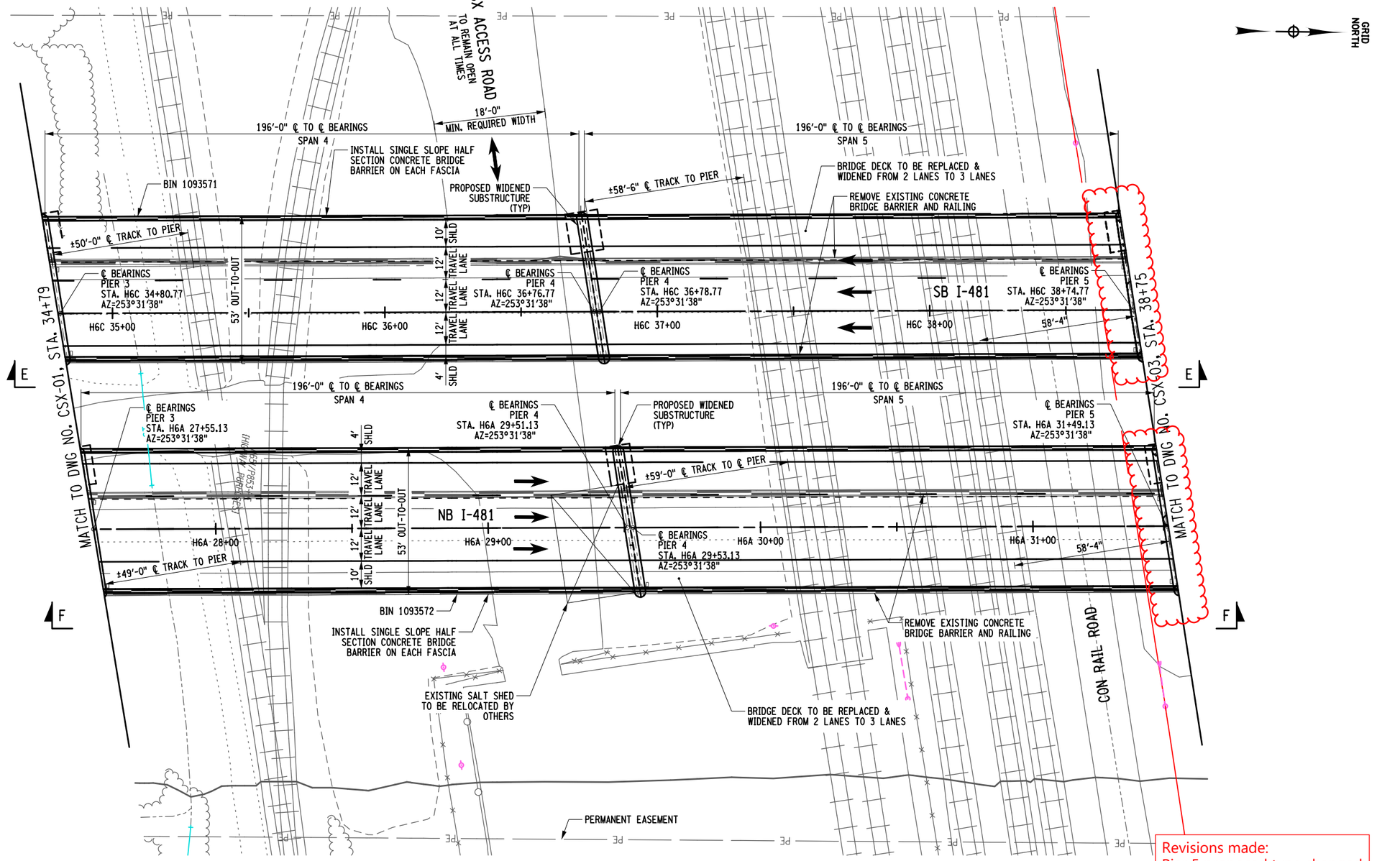

Revisions made:
Pier 5 proposed type changed to a multi-column pier

20 0 20 40

PLAN

NOTES:

1. SPAN LENGTHS SHOWN ARE BASED ON LOCATION OF PROPOSED HORIZONTAL ALIGNMENTS.
2. AZIMUTHS SHOWN ARE BASED ON RECORD PLAN INFORMATION FROM CONTRACT F.I.S.H. 70-7.

AFFIX SEAL: ON:	ALTERED BY: ON:

AS-BUILT REVISIONS DESCRIPTION OF ALTERATIONS:	I-81 VIADUCT PROJECT PHASE 1, CONTRACT 2 COUNTY: ONONDAGA REGION: 3	PIN 3501.91	BRIDGES 1093571 (14) 1093572 (15)	CULVERTS	ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED INDICATIVE PLANS I-81 (FORMER I-481) OVER CSX RAILYARD GENERAL PLAN	CONTRACT NUMBER D900056 DRAWING NO. CSX-02 SHEET NO.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

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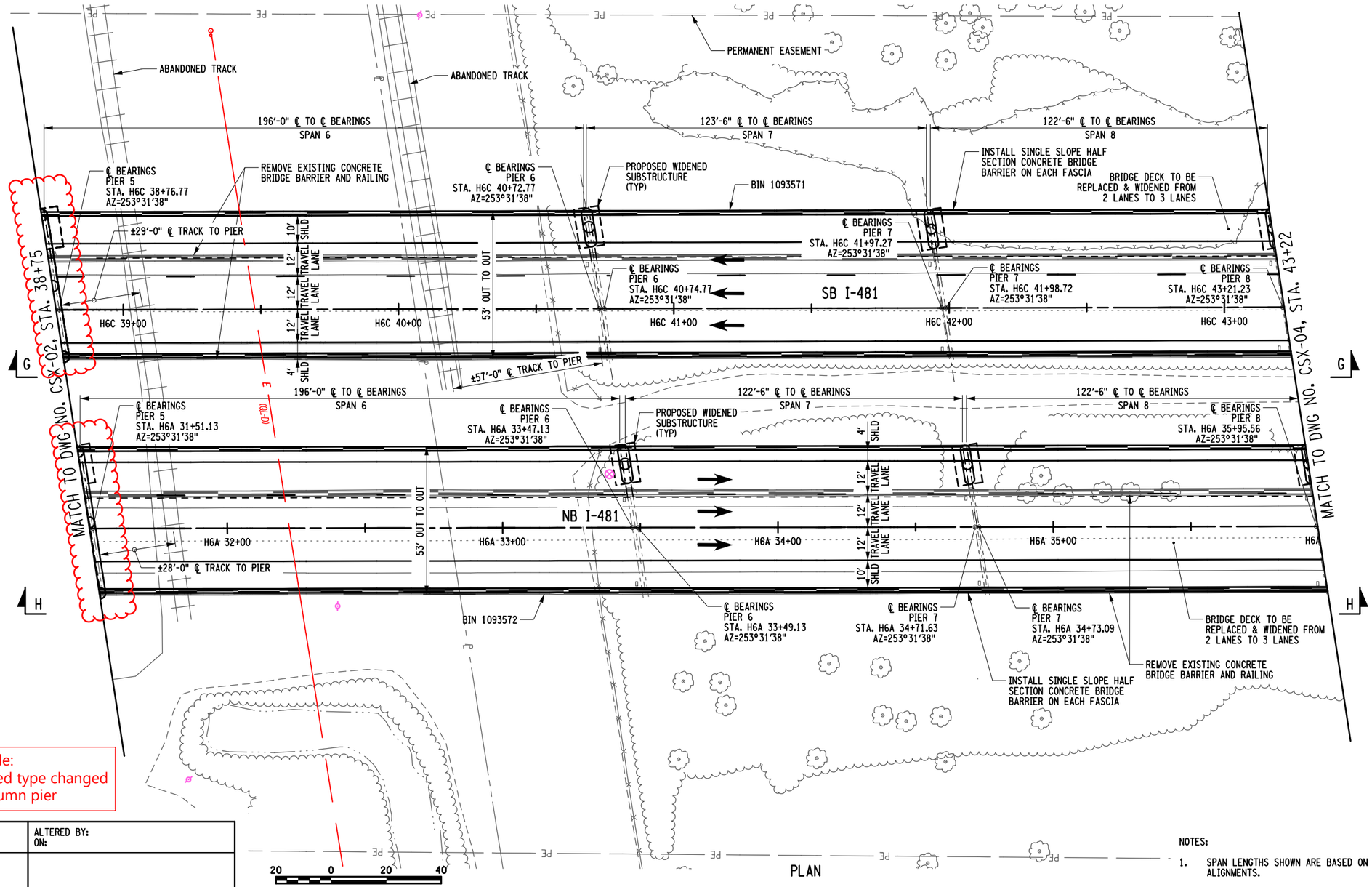

Revisions made:
Pier 5 proposed type changed to a multi-column pier

NOTES:

1. SPAN LENGTHS SHOWN ARE BASED ON LOCATION OF PROPOSED HORIZONTAL ALIGNMENTS.
2. AZIMUTHS SHOWN ARE BASED ON RECORD PLAN INFORMATION FROM CONTRACT F.I.S.H. 70-7.

AFFIX SEAL: ON:	ALTERED BY: ON:

AS-BUILT REVISIONS DESCRIPTION OF ALTERATIONS:	I-81 VIADUCT PROJECT PHASE 1, CONTRACT 2 COUNTY: ONONDAGA REGION: 3	PIN 3501.91	BRIDGES 1093571 (14) 1093572 (15)	CULVERTS	ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED INDICATIVE PLANS I-81 (FORMER I-481) OVER CSX TRANS/AMTRAK GENERAL PLAN	CONTRACT NUMBER D900056 DRAWING NO. CSX-03 SHEET NO.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

PROJECT MANAGER
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DESIGN SUPERVISOR

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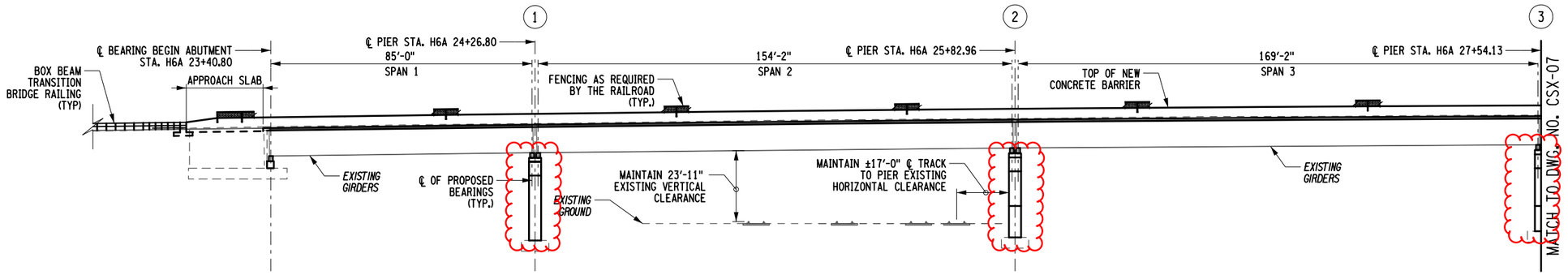
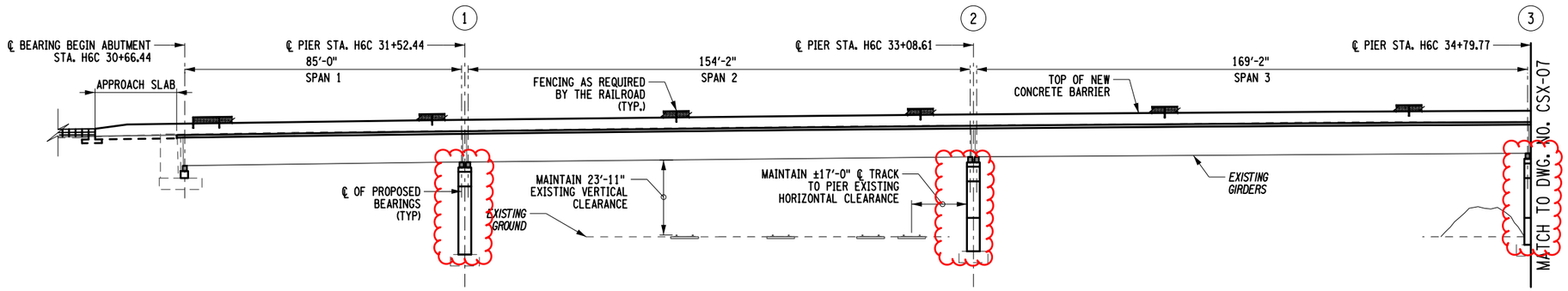


ELEVATION D-D
NB I-81 (FORMER NB I-481) ELEVATION



ELEVATION C-C
SB I-81 (FORMER SB I-481) ELEVATION

Revisions made:
Pier stem line weights changed to "Proposed" line weight.

NOTES:

1. FOR GENERAL PLAN, SEE DWG. NO. CSX-01.
2. FOR PROPOSED PROFILES, REFER TO FINAL EIS APPENDIX A-1 PLANS AND SECTIONS.
3. SPAN LENGTHS SHOWN ARE BASED ON LOCATION OF PROPOSED HORIZONTAL ALIGNMENT.

20 0 20 40

AFFIX SEAL: ON:	ALTERED BY: ON:

AS-BUILT REVISIONS DESCRIPTION OF ALTERATIONS:	I-81 VIADUCT PROJECT PHASE 1, CONTRACT 2 COUNTY: ONONDAGA REGION: 3	PIN 3501.91	BRIDGES 1093571 (14) 1093572 (15)	CULVERTS	ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED INDICATIVE PLANS I-81 (FORMER I-481) OVER CSX RAILYARD PROPOSED ELEVATIONS	CONTRACT NUMBER D900056 DRAWING NO. CSX-06 SHEET NO.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

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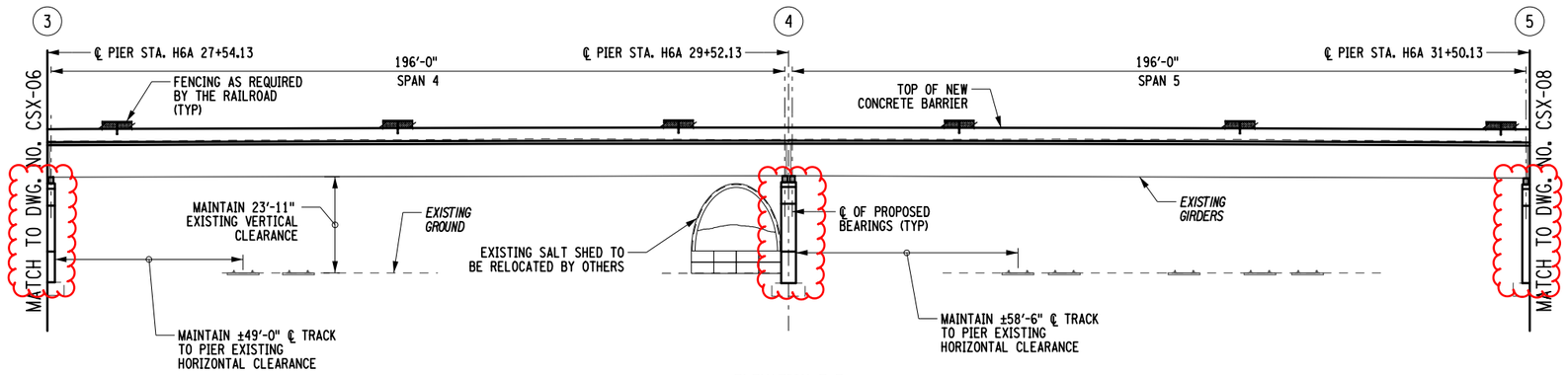
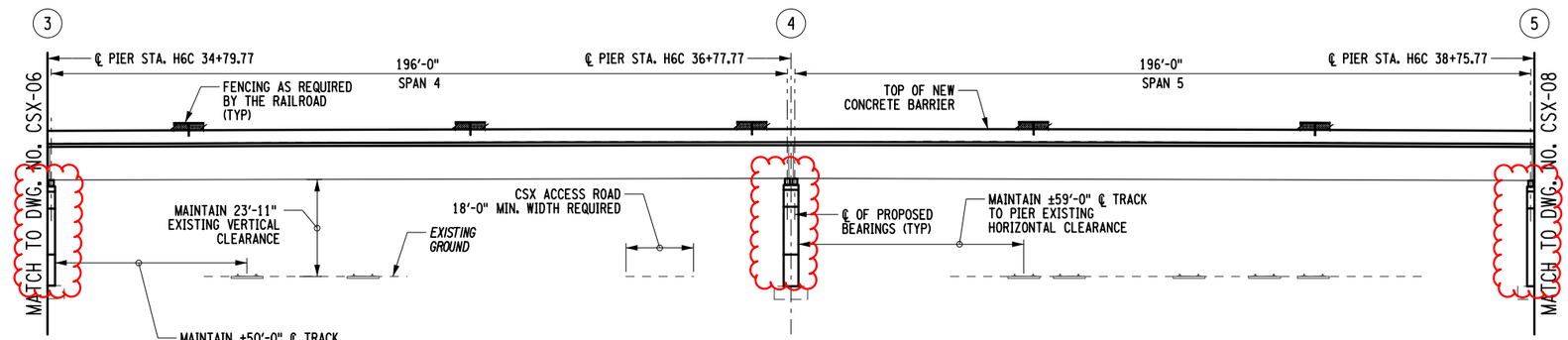


ELEVATION F-F

NB I-81 (FORMER NB I-481) ELEVATION



ELEVATION E-E

SB I-81 (FORMER SB I-481) ELEVATION

Revisions made:
Pier stem line weights changed to "Proposed" line weight.

NOTES:

1. FOR GENERAL PLAN, SEE DWG. NO. CSX-02.
2. FOR PROPOSED PROFILES, REFER TO FINAL EIS APPENDIX A-1 PLANS AND SECTIONS.
3. SPAN LENGTHS SHOWN ARE BASED ON LOCATION OF PROPOSED HORIZONTAL ALIGNMENT.

AFFIX SEAL: ON:	ALTERED BY: ON:

20 0 20 40

AS-BUILT REVISIONS DESCRIPTION OF ALTERATIONS:	I-81 VIADUCT PROJECT PHASE 1, CONTRACT 2 COUNTY: ONONDAGA REGION: 3	PIN 3501.91	BRIDGES 1093571 (14) 1093572 (15)	CULVERTS	ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED INDICATIVE PLANS I-81 (FORMER I-481) OVER CSX RAILYARD PROPOSED ELEVATIONS	CONTRACT NUMBER D900056 DRAWING NO. CSX-07 SHEET NO.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

PROJECT MANAGER
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DESIGN SUPERVISOR

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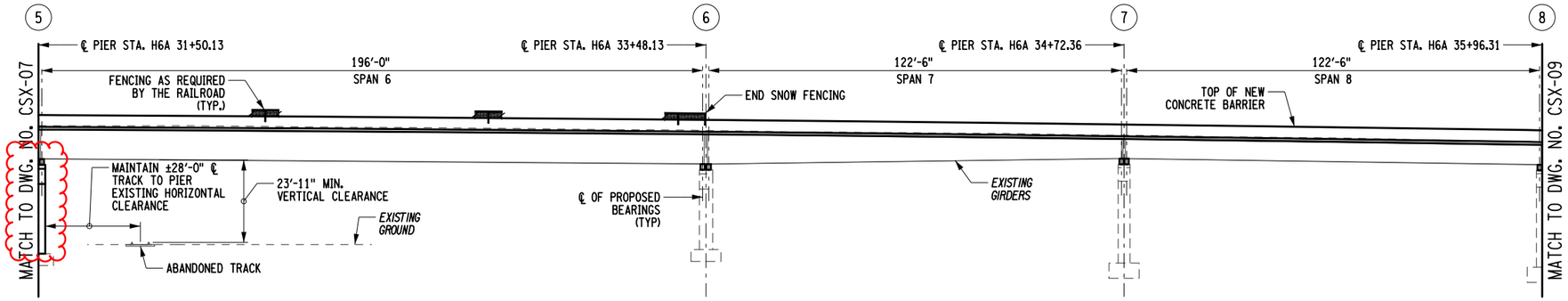
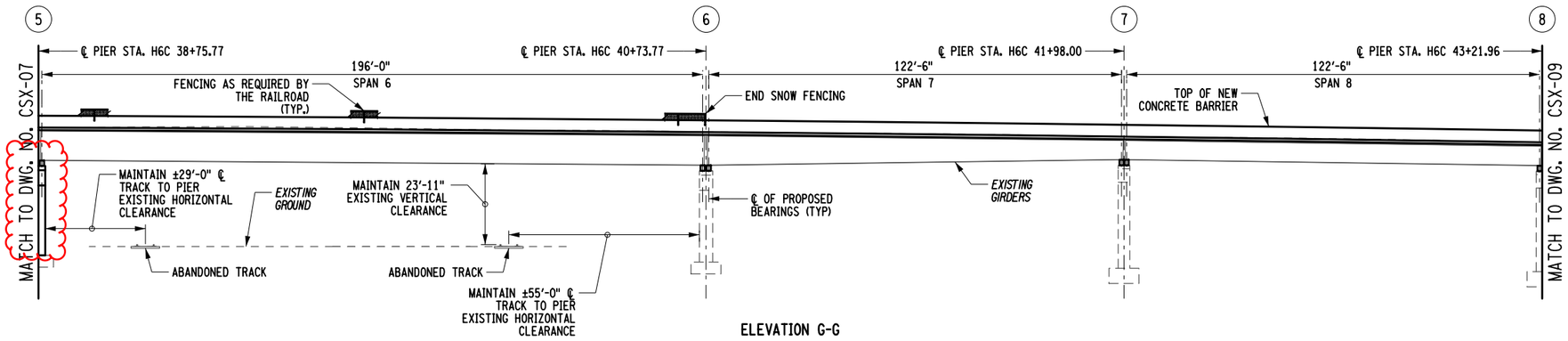


ELEVATION H-H

NB I-81 (FORMER NB I-481) ELEVATION



ELEVATION G-G

SB I-81 (FORMER SB I-481) ELEVATION

Revisions made:
Pier stem line weights changed to "Proposed" line weight (Pier 5 only).
Bridge No. corrected.

NOTES:

1. FOR GENERAL PLAN, SEE DWG. NO. CSX-03.
2. FOR PROPOSED PROFILES, REFER TO FINAL EIS APPENDIX A-1 PLANS AND SECTIONS.
3. SPAN LENGTHS SHOWN ARE BASED ON LOCATION OF PROPOSED HORIZONTAL ALIGNMENT.

20 0 20 40

AFFIX SEAL: ON:	ALTERED BY: ON:

AS-BUILT REVISIONS
DESCRIPTION OF ALTERATIONS:

I-81 VIADUCT PROJECT
PHASE 1, CONTRACT 2
COUNTY: ONONDAGA REGION: 3

PIN 3501.91

BRIDGES
1093571 (14)
1093572 (15)

CULVERTS

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

INDICATIVE PLANS

I-81 (FORMER I-481) OVER CSX RAILYARD
PROPOSED ELEVATIONS

CONTRACT NUMBER
D900056

DRAWING NO. CSX-08
SHEET NO.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

PROJECT MANAGER
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DESIGN SUPERVISOR

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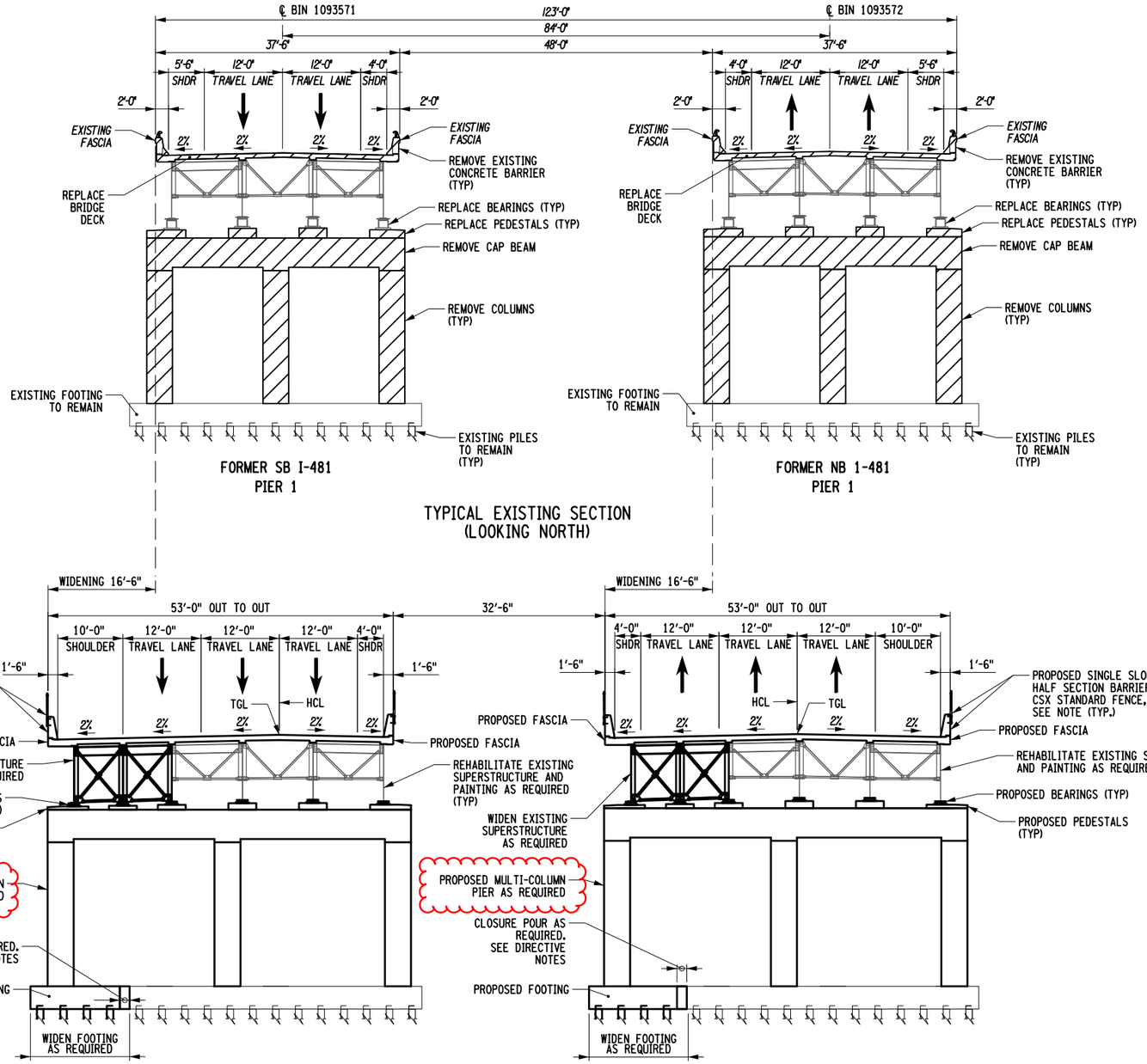

NOTES:

1. FENCE TO BE INCLUDED IN ACCORDANCE WITH CSX PUBLIC PROJECTS MANUAL.
2. TRACK MONITORING WILL BE INSTALLED FOR PILE DRIVING OPERATIONS.
3. BALLAST PROTECTION WILL BE INSTALLED.
4. DEMOLITION PROCEDURES SHALL BE SUBMITTED FOR PIER REPLACEMENTS AND DECK REMOVAL.
5. ERECTION PROCEDURES SHALL BE SUBMITTED FOR APPROVAL BY CSXT.

Revisions made:
Pier 1 proposed type changed to a multi-column pier

AFFIX SEAL: ON:	ALTERED BY: ON:

AS-BUILT REVISIONS DESCRIPTION OF ALTERATIONS:	I-81 VIADUCT PROJECT PHASE 1, CONTRACT 2 COUNTY: ONONDAGA REGION: 3	PIN 3501.91	BRIDGES 1093571 (14) 1093572 (15)	CULVERTS	ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED INDICATIVE PLANS I-81 (FORMER I-481) OVER CSX RAILYARD TYPICAL BRIDGE SECTIONS	CONTRACT NUMBER D900056 DRAWING NO. CSX-11 SHEET NO.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

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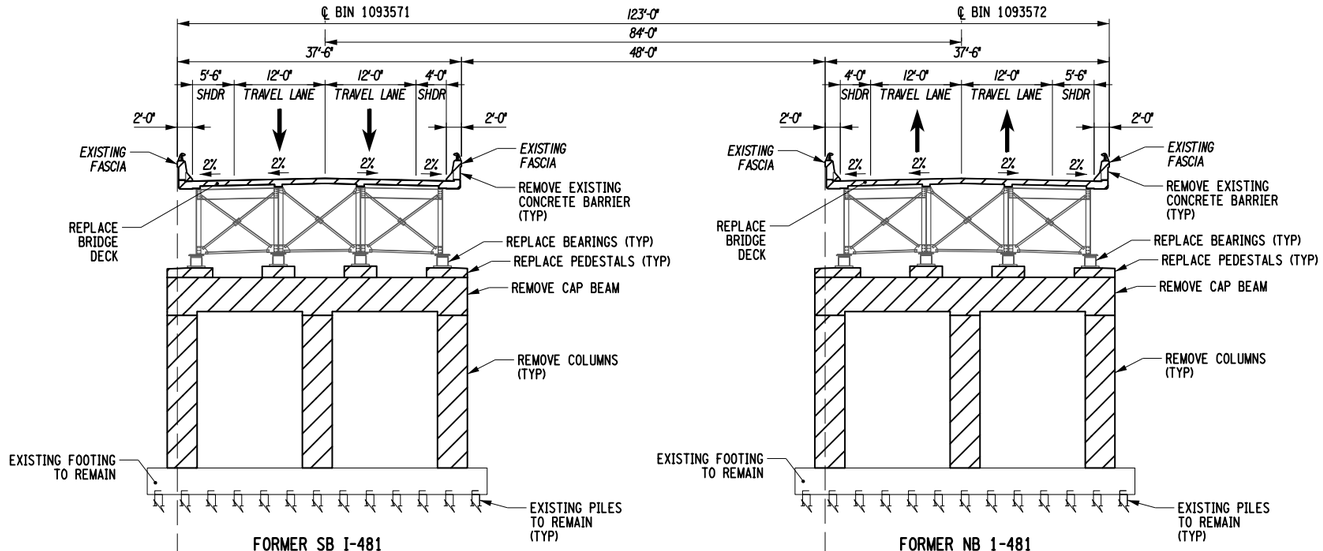
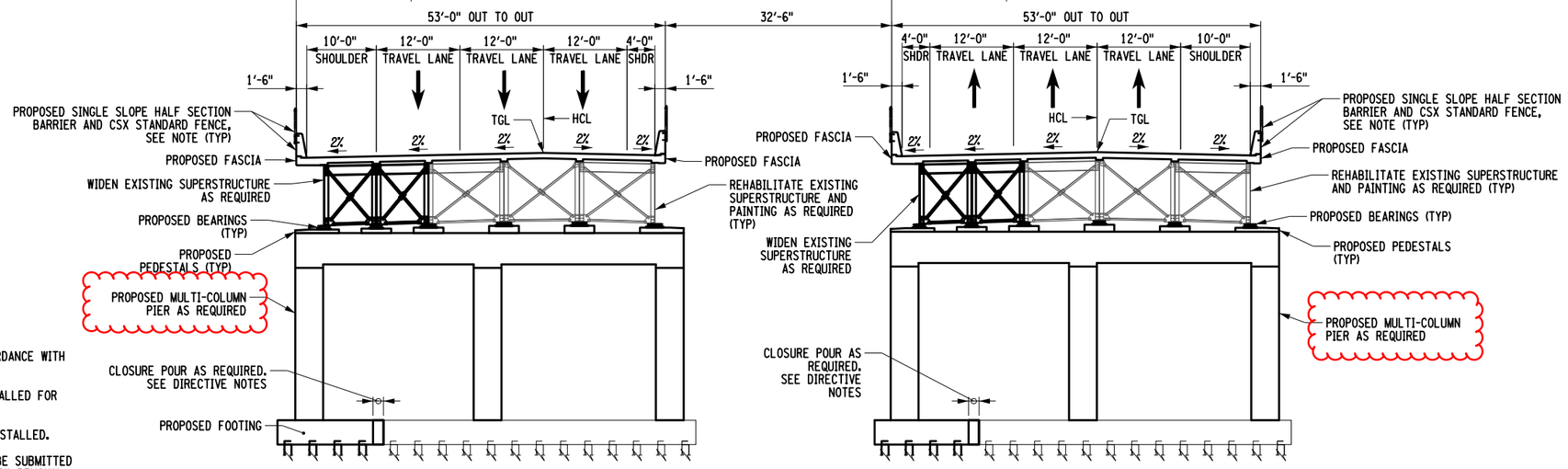


TYPICAL EXISTING SECTION
(LOOKING NORTH)



NOTES:

1. FENCE TO BE INCLUDED IN ACCORDANCE WITH CSX PUBLIC PROJECTS MANUAL.
2. TRACK MONITORING WILL BE INSTALLED FOR PILE DRIVING OPERATIONS.
3. BALLAST PROTECTION WILL BE INSTALLED.
4. DEMOLITION PROCEDURES SHALL BE SUBMITTED FOR PIER REPLACEMENTS AND DECK REMOVAL.
5. ERECTION PROCEDURES SHALL BE SUBMITTED FOR APPROVAL BY CSXT.

SB I-81 (FORMER SB I-481)
PIER 5
BIN 1093571

NB I-81 (FORMER NB I-481)
PIER 5
BIN 1093572

TYPICAL PROPOSED SECTION
(LOOKING NORTH)

10 0 10 20

Revisions made:
Pier 5 proposed type changed to a multi-column pier

AFFIX SEAL: ON:	ALTERED BY: ON:

AS-BUILT REVISIONS
DESCRIPTION OF ALTERATIONS:

I-81 VIADUCT PROJECT
PHASE 1, CONTRACT 2
COUNTY: ONONDAGA REGION: 3

PIN 3501.91

BRIDGES
1093571 (14)
1093572 (15)

CULVERTS

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

INDICATIVE PLANS
I-81 (FORMER I-481) OVER CSX RAILYARD
TYPICAL BRIDGE SECTIONS

CONTRACT NUMBER
D900056

DRAWING NO. CSX-13
SHEET NO.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

PROJECT MANAGER
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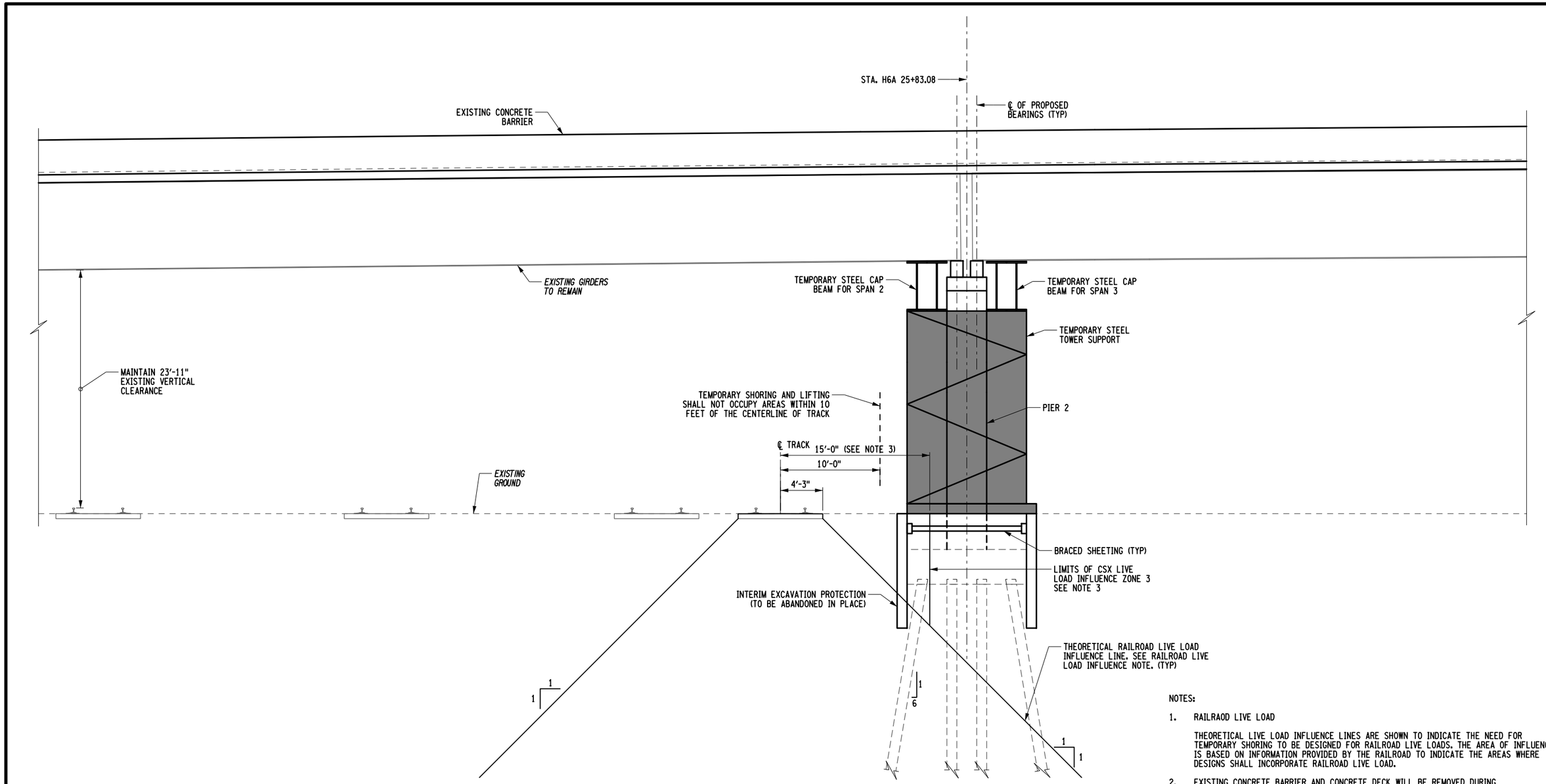

PIER 2 TYPICAL LIVE LOAD INFLUENCE AND TEMPORARY SHORING SCHEMATIC
OPTION 2

10 0 5 10

NOTES:

1. RAILRAOD LIVE LOAD

   THEORETICAL LIVE LOAD INFLUENCE LINES ARE SHOWN TO INDICATE THE NEED FOR TEMPORARY SHORING TO BE DESIGNED FOR RAILROAD LIVE LOADS. THE AREA OF INFLUENCE IS BASED ON INFORMATION PROVIDED BY THE RAILROAD TO INDICATE THE AREAS WHERE DESIGNS SHALL INCORPORATE RAILROAD LIVE LOAD.

2. EXISTING CONCRETE BARRIER AND CONCRETE DECK WILL BE REMOVED DURING CONSTRUCTION.

3. SHORING SHALL BE DESIGNED TO RESIST A VERTICAL LIVE LOAD SURCHAGRE OF 1,882 LBS. PER SQUARE FOOT, IN ADDITION TO ACTIVE EARTH PRESSURE. THE SURCHARGE SHALL BE ASSUMED TO ACT ON A CONTINUOUS STRIP, 8'-6" WIDE. LATERAL PRESSURES DUE TO SURCHARGE SHALL BE COMPUTED USING THE STRIP LOAD FORMULA SHOWN IN AREMA MRE CHAPTER 8 PART 20.

   FOR SHEETING AND SHORING WITHIN 18'-0" OF THE CENTERLINE OF THE TRACK, THE LIVE LOAD INFLUENCE ZONE, AND IN SLOPES, THE CONTRACTOR SHALL USE SHEET PILE. NO SHEET PILE IN SLOPES OR WITHIN 18'-0" OF THE CENTERLINE OF TRACK SHALL BE REMOVED. SHEET PILES SHALL BE CUT OFF 3'-0" BELOW THE FINISHED GROUND LINES. THE REMAINING 3'-0" SHALL BE BACKFILLED AND COMPACTED IMMEDIATLEY AFTER CUT-OFF.

Revisions made:
Bridge No. corrected

AFFIX SEAL: ON:	ALTERED BY: ON:

AS-BUILT REVISIONS DESCRIPTION OF ALTERATIONS:	I-81 VIADUCT PROJECT PHASE 1, CONTRACT 2 COUNTY: ONONDAGA REGION: 3	PIN 3501.91	BRIDGES 1093571 (14) 1093572 (15)	CULVERTS	ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED INDICATIVE PLANS I-81 (FORMER I-481) OVER CSX RAILYARD TEMPORARY SHORING ELEVATION PIER 2 OPTION 2	CONTRACT NUMBER D900056 DRAWING NO. CSX-30 SHEET NO.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

PROJECT MANAGER
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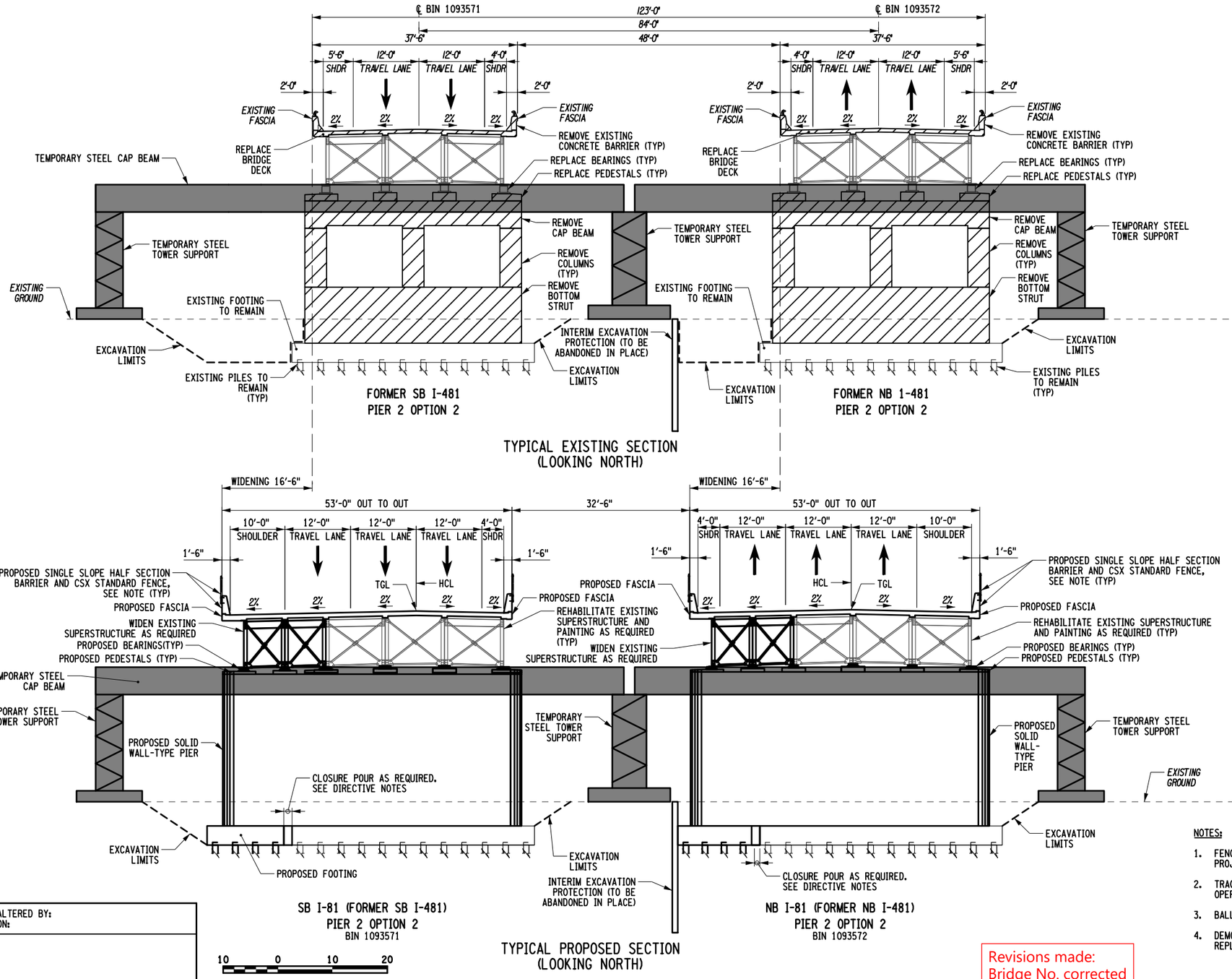

NOTES:

1. FENCE TO BE INCLUDED IN ACCORDANCE WITH CSX PUBLIC PROJECTS MANUAL.
2. TRACK MONITORING WILL BE INSTALLED FOR PILE DRIVING OPERATIONS.
3. BALLAST PROTECTION WILL BE INSTALLED.
4. DEMOLITION PROCEDURES SHALL BE SUBMITTED FOR PIER REPLACEMENTS AND DECK REMOVAL.

Revisions made:
Bridge No. corrected

AFFIX SEAL: ON:	ALTERED BY: ON:

AS-BUILT REVISIONS
DESCRIPTION OF ALTERATIONS:

I-81 VIADUCT PROJECT
PHASE 1, CONTRACT 2
COUNTY: ONONDAGA REGION: 3

PIN 3501.91

BRIDGES
1093571 (14)
1093572 (15)

CULVERTS

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

INDICATIVE PLANS

I-81 (FORMER I-481) OVER CSX RAILYARD
TEMPORARY SHORING SECTION
PIER 2 OPTION 2

CONTRACT NUMBER
D900056

DRAWING NO. CSX-31
SHEET NO.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

PROJECT MANAGER
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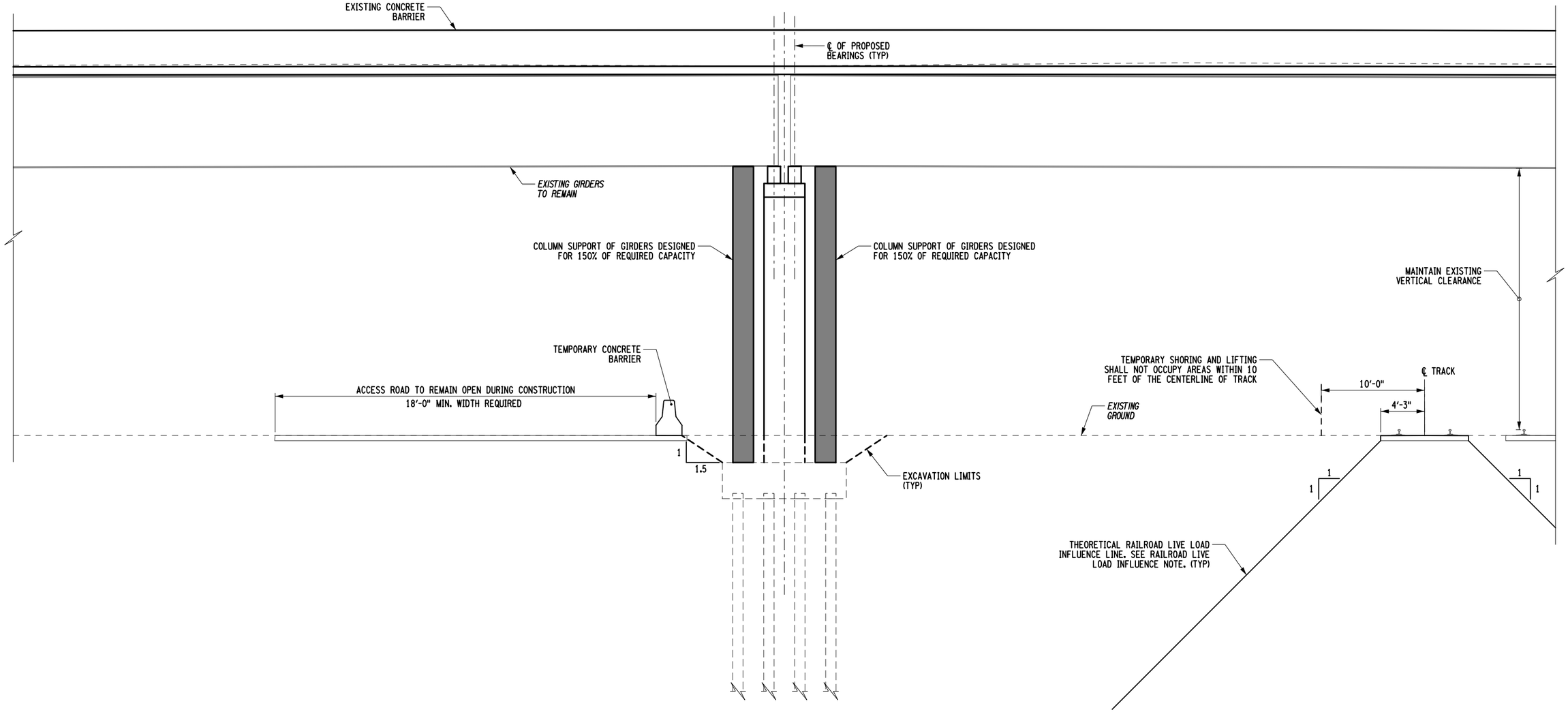

TYPICAL LIVE LOAD INFLUENCE AND TEMPORARY SHORING SCHEMATIC
TYPICAL ALL OTHER PIERS (PIER 4 SOUTHBOUND SHOWN)

NOTES:

1. RAILRAOD LIVE LOAD

   THEORETICAL LIVE LOAD INFLUENCE LINES ARE SHOWN TO INDICATE THE NEED FOR TEMPORARY SHORING TO BE DESIGNED FOR RAILROAD LIVE LOADS. THE AREA OF INFLUENCE IS BASED ON INFORMATION PROVIDED BY THE RAILROAD TO INDICATE THE AREAS WHERE DESIGNS SHALL INCORPORATE RAILROAD LIVE LOAD.

2. EXISTING CONCRETE BARRIER AND CONCRETE DECK WILL BE REMOVED DURING CONSTRUCTION.

10 0 5 10

Revisions made:
Bridge No. corrected

AFFIX SEAL: ON:	ALTERED BY: ON:

AS-BUILT REVISIONS
DESCRIPTION OF ALTERATIONS:

I-81 VIADUCT PROJECT
PHASE 1, CONTRACT 2

COUNTY: ONONDAGA REGION: 3

PIN 3501.91

BRIDGES
1093571 (14)
1093572 (15)

CULVERTS

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

INDICATIVE PLANS

I-81 (FORMER I-481) OVER CSX RAILYARD
TEMPORARY SHORING ELEVATION
OPTION 1

CONTRACT NUMBER
D900056

DRAWING NO. CSX-33
SHEET NO.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

PROJECT MANAGER
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JOB MANAGER
DESIGN
DESIGN SUPERVISOR

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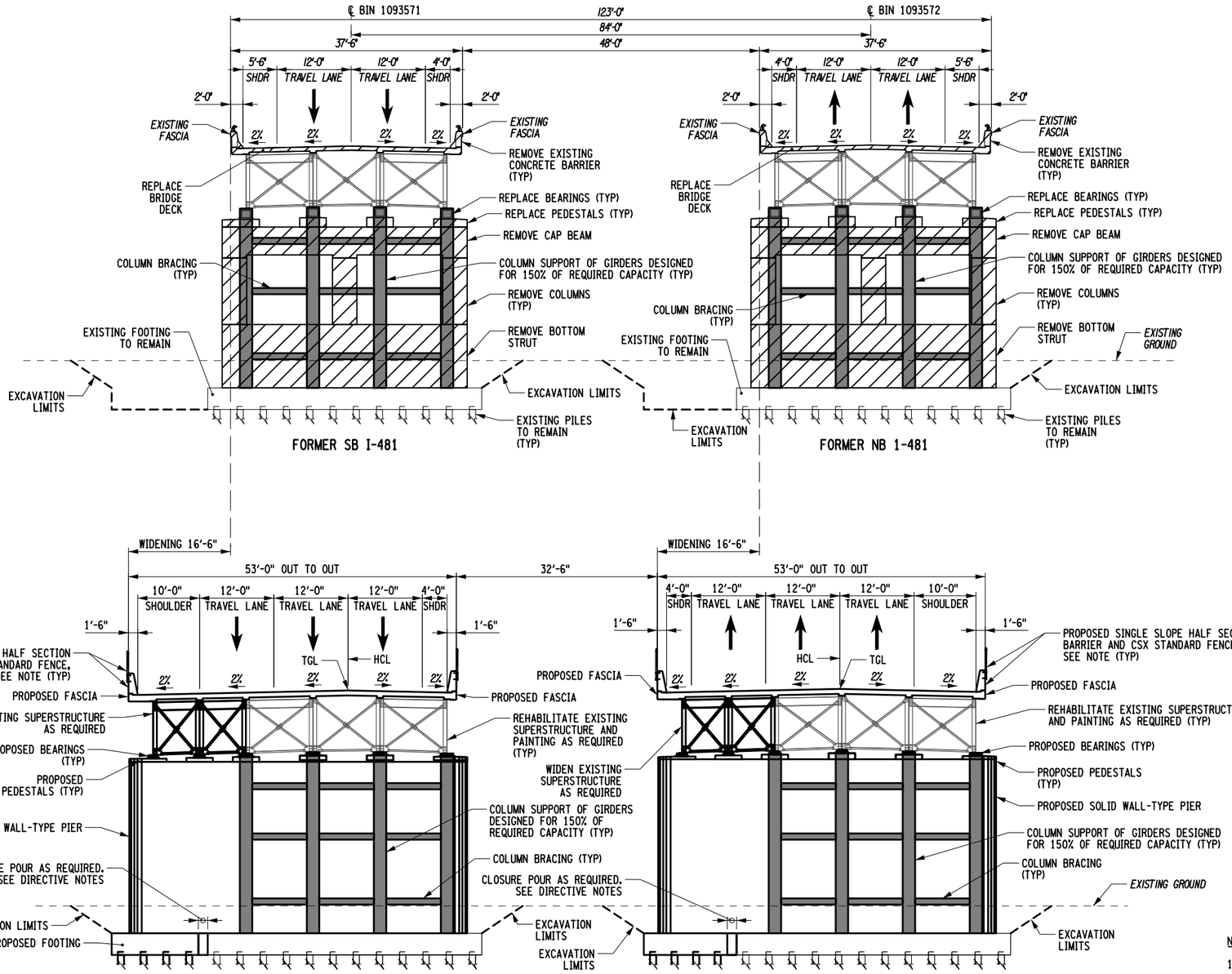

TYPICAL TEMPORARY SHORING ELEVATION (ALL PIERS EXCEPT PIER 2) PIER 4 SHOWN

NOTES:

1. FENCE TO BE INCLUDED IN ACCORDANCE WITH CSX PUBLIC PROJECTS MANUAL.
2. TRACK MONITORING WILL BE INSTALLED FOR PILE DRIVING OPERATIONS.
3. BALLAST PROTECTION WILL BE INSTALLED.
4. DEMOLITION PROCEDURES SHALL BE SUBMITTED FOR PIER REPLACEMENTS AND DECK REMOVAL.

Revisions made:
Bridge No. corrected

AFFIX SEAL: ON:	ALTERED BY: ON:

AS-BUILT REVISIONS
DESCRIPTION OF ALTERATIONS:

I-81 VIADUCT PROJECT
PHASE 1, CONTRACT 2
COUNTY: ONONDAGA REGION: 3

PIN 3501.91

BRIDGES
1093571 (14)
1093572 (15)

CULVERTS

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

INDICATIVE PLANS

I-81 (FORMER I-481) OVER CSX RAILYARD
TEMPORARY SHORING SECTION
OPTION 1

CONTRACT NUMBER
D900056

DRAWING NO. CSX-34
SHEET NO.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

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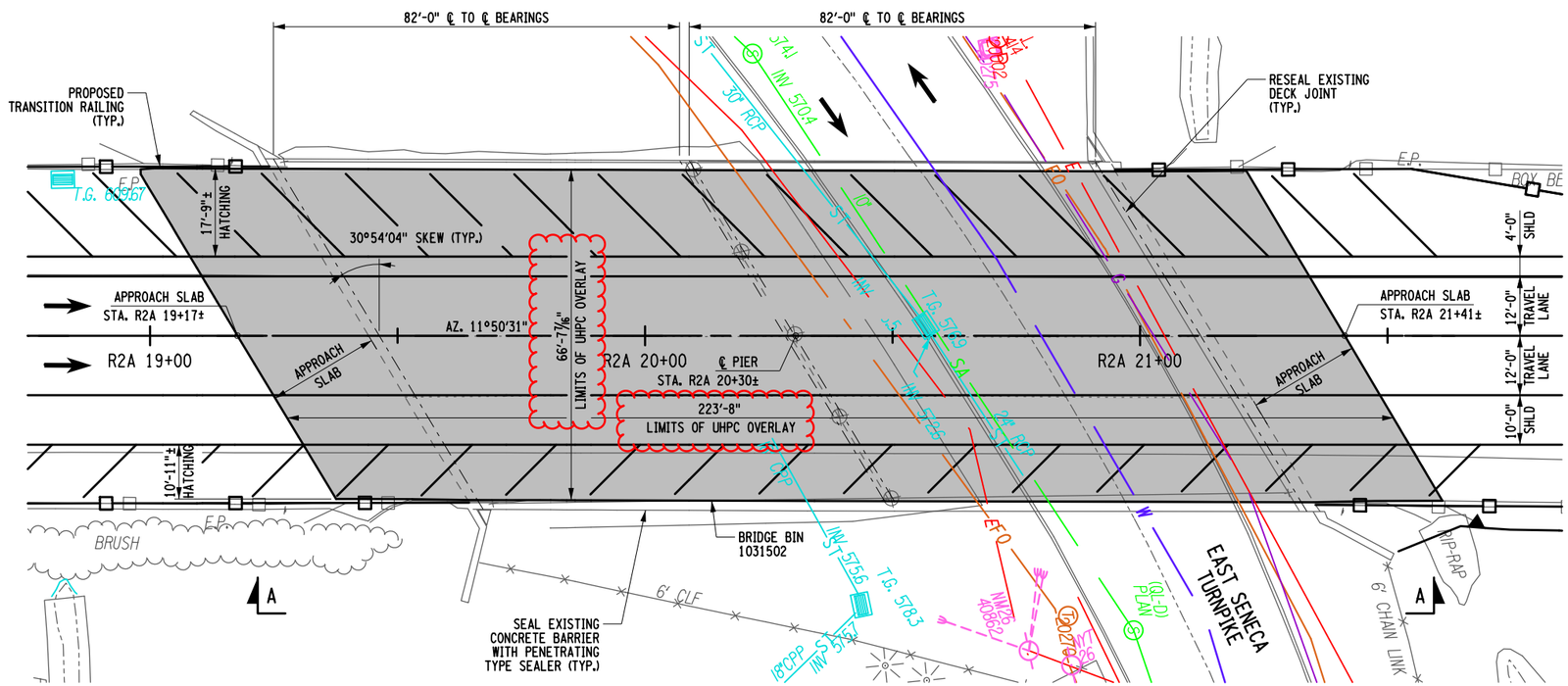
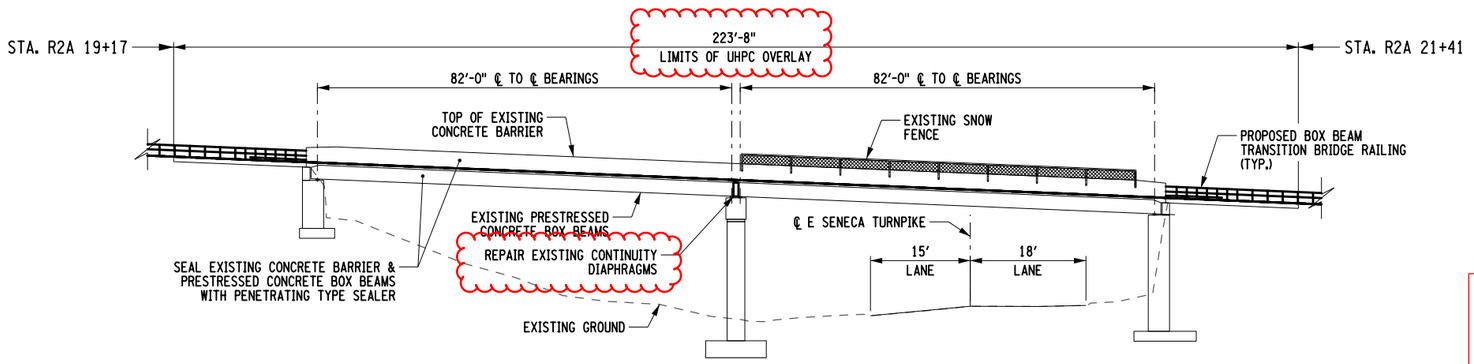


BRIDGE PLAN

15 0 15 30



ELEVATION A-A

BRIDGE ELEVATION

15 0 15 30

Revisions made:
Thin Polymer Overlay changed to 1.5" depth hydro-demolition and placement of UHPC Overlay.
Repair of Continuity Diaphragms added.

LEGEND:

ULTRA-HIGH PERFORMANCE CONCRETE (UHPC) OVERLAY

AFFIX SEAL: ON:	ALTERED BY: ON:

AS-BUILT REVISIONS DESCRIPTION OF ALTERATIONS:	I-81 VIADUCT PROJECT PHASE 1, CONTRACT 2 COUNTY: ONONDAGA REGION: 3	PIN 3501.91	BRIDGES 1031502 (18)	CULVERTS	ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED INDICATIVE PLANS I-81 NORTHBOUND OVER EAST SENECA TURNPIKE BRIDGE PLAN AND ELEVATION	CONTRACT NUMBER D900056 DRAWING NO. SR1-01 SHEET NO.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

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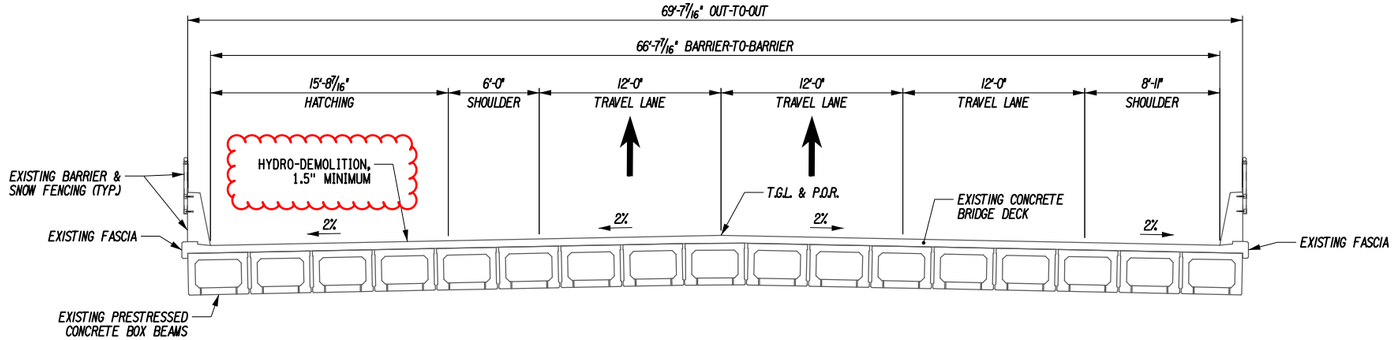
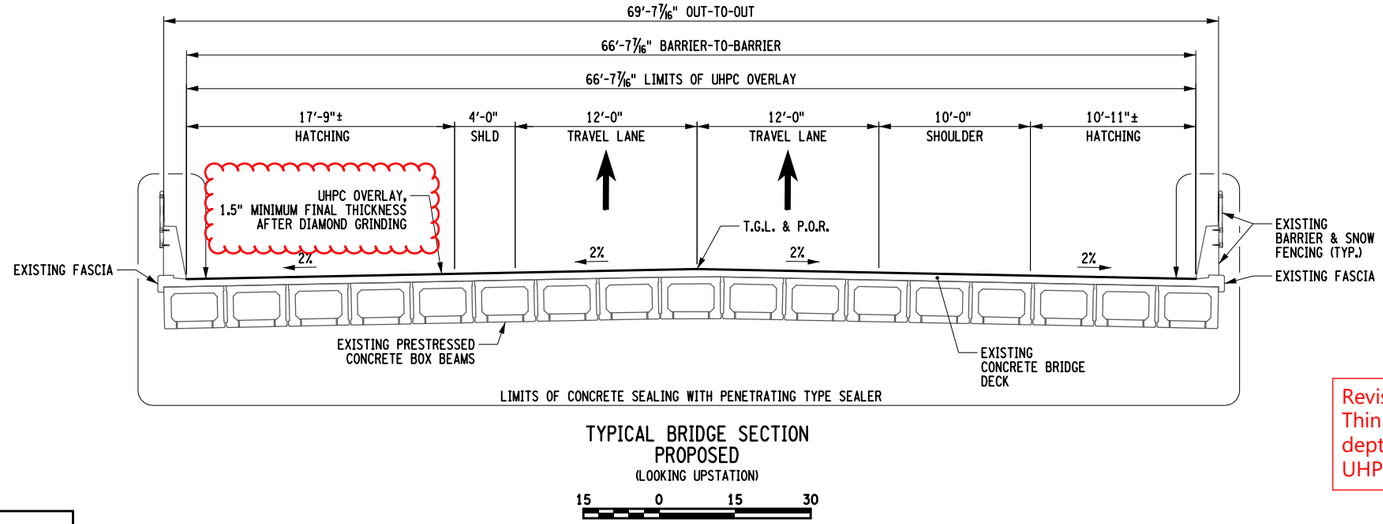


TYPICAL BRIDGE SECTION
EXISTING
(LOOKING UPSTATION)

15 0 15 30



TYPICAL BRIDGE SECTION
PROPOSED
(LOOKING UPSTATION)

15 0 15 30

Revisions made:
Thin Polymer Overlay changed to 1.5" (min.) depth hydro-demolition and placement of UHPC Overlay.

AFFIX SEAL: ON:	ALTERED BY: ON:

AS-BUILT REVISIONS DESCRIPTION OF ALTERATIONS:	I-81 VIADUCT PROJECT PHASE 1, CONTRACT 2 COUNTY: ONONDAGA REGION: 3	PIN 3501.91	BRIDGES 1031502 (18)	CULVERTS	ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED INDICATIVE PLANS I-81 NORTHBOUND OVER EAST SENECA TURNPIKE TYPICAL BRIDGE SECTIONS	CONTRACT NUMBER D900056 DRAWING NO. SR1-02 SHEET NO.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

PROJECT MANAGER
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DESIGN SUPERVISOR

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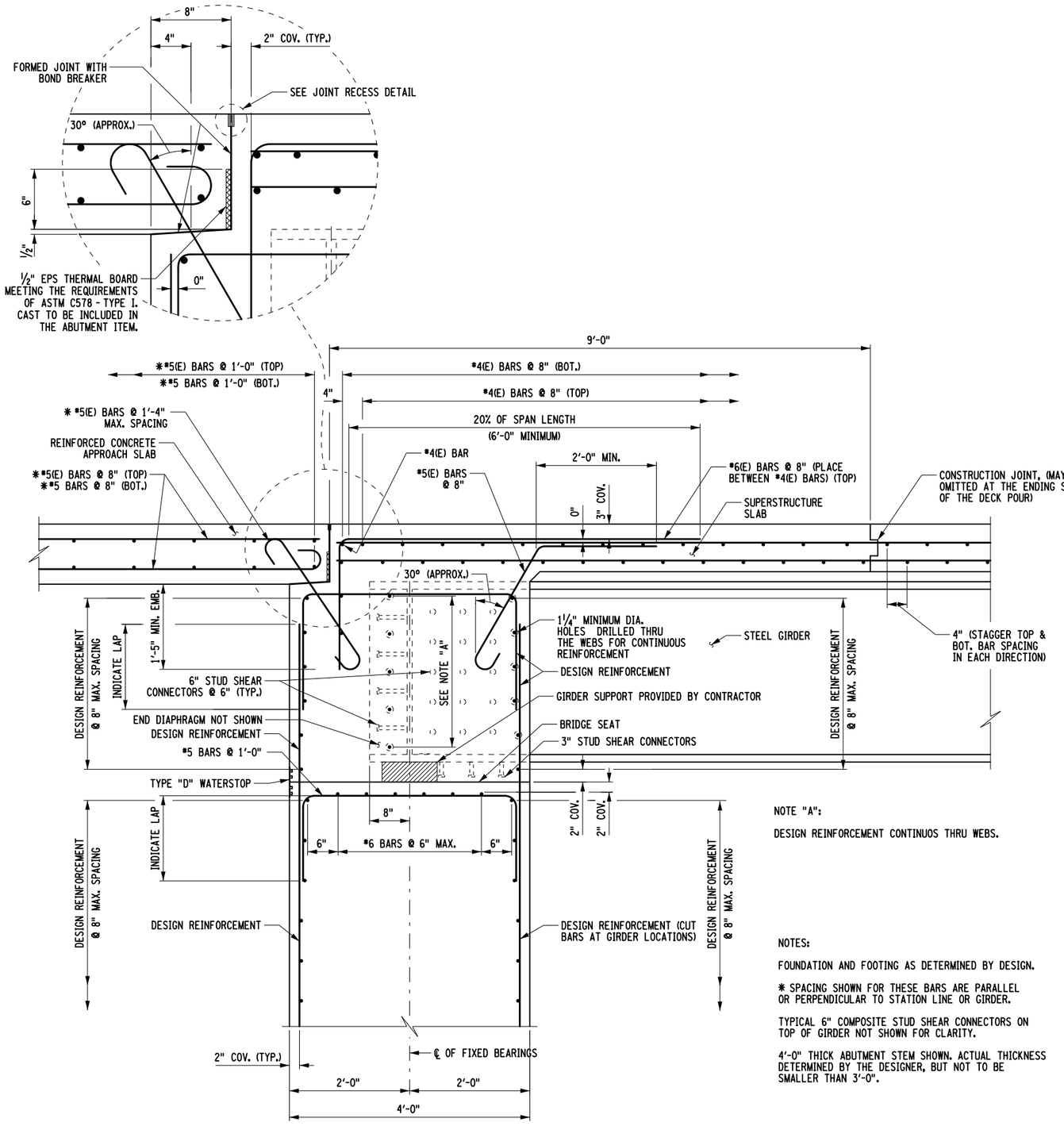
ENGINEERING DATA

TABLE OF CONTENTS



FIXED FRAME ABUTMENT

NOTE "A":

DESIGN REINFORCEMENT CONTINUOS THRU WEBS.

NOTES:

FOUNDATION AND FOOTING AS DETERMINED BY DESIGN.

* SPACING SHOWN FOR THESE BARS ARE PARALLEL OR PERPENDICULAR TO STATION LINE OR GIRDER.

TYPICAL 6" COMPOSITE STUD SHEAR CONNECTORS ON TOP OF GIRDER NOT SHOWN FOR CLARITY.

4'-0" THICK ABUTMENT STEM SHOWN. ACTUAL THICKNESS DETERMINED BY THE DESIGNER, BUT NOT TO BE SMALLER THAN 3'-0".

FIXED FRAME ABUTMENT CONSTRUCTION PROCEDURE

1. FOUNDATION AND FOOTING CONSTRUCT APPROPRIATE TO THE ELEVATIONS REQUIRED.
2. PLACE ABUTMENT STEM CONCRETE TO BRIDGE SEAT ELEVATION.
3. BACKFILL ABUTMENT STEMS TO 6" BELOW THE BRIDGE SEAT ELEVATION. NO BACKFILL OF THE ABUTMENT STEMS ALLOWED UNTIL THE ABUTMENTS HAVE CURED FOR 7 DAYS.
4. PLACE SLOPE PROTECTION, IF REQUIRED.
5. ERECT GIRDERS AND INSTALL ALL DIAPHRAGMS. GIRDERS SHALL BE FABRICATED AND ERECTED SUCH THAT THE WEBS WILL BE VERTICAL UNDER FULL DEAD LOAD.
6. AT THE STARTING SIDE OF THE DECK PLACEMENT, BEGIN CONCRETE FOR DECK SLAB 9 ft. FROM END OF SUPERSTRUCTURE SLAB.
7. PLACE ABUTMENT BACKWALL AND REMAINING PORTION OF DECK CONCRETE. (ABUTMENT BACKWALL SHALL NOT BE PLACED UNTIL DECK SLAB HAS CURED FOR AT LEAST 3 DAYS.)
8. BACKFILL ABUTMENT BACKWALLS. NO BACKFILLING OF THE ABUTMENT IS ALLOWED UNTIL BACKWALLS HAVE CURED FOR 7 DAYS. BACKFILLING SHALL BE CONDUCTED SUCH THAT THE MAXIMUM DIFFERENTIAL IN FILL HEIGHT BETWEEN THE TWO STEMS (AS MEASURED FROM THE BOTTOM OF THE STEM) DOES NOT EXCEED 2 ft. IN ADDITION, THE FILL HEIGHT BEHIND ANY SINGLE ABUTMENT STEM SHALL NOT VARY MORE THAN 2 ft.
9. PLACE CONCRETE FOR APPROACH SLABS.

DESIGNER NOTES:

FOR STAGE CONSTRUCTION WITH THREE OR MORE GIRDERS IN EACH STAGE, A DIAPHRAGM IS NOT NEEDED BETWEEN STAGES AT THE ABUTMENT. THE DESIGNER SHALL DETAIL AS SUCH ON THE PLANS.

ISOTROPIC DECK REINFORCEMENT FOR SKEWS 30° AND UNDER SHOWN. FOR TRADITIONAL DECK REINFORCEMENT, SEE BD-SS10 & 11.

EPOXY-COATED (E) BARS SHOWN. OTHER CORROSION PROTECTION OPTIONS ARE AVAILABLE. REFER TO SECTION 15.12 OF THE BRIDGE MANUAL.

EVERY BAY SHALL HAVE AN INTERMEDIATE TYPE DIAPHRAGM INSTALLED AT THE CENTERLINE OF BEARINGS OF EACH ABUTMENT. FOR TYPICAL DIAPHRAGM DETAILS, SEE THE BD-SG DRAWINGS.

THE LOCATION AND DIAMETER OF THE HOLES IN THE STEEL GIRDER WEB ARE DEPENDENT UPON THE SKEW. LOCATE THE HOLES TO MEET CONCRETE COVER REQUIREMENTS. SIZE THE HOLES TO MEET SKEW REQUIREMENTS.

FOR STEEL INTEGRAL ABUTMENT KEYWAY DETAILS, SEE BD-ID3E.

SEE EARTHWORK DETAILS ON BD-ID3E FOR FURTHER DETAILS.

FOR JOINT RECESS DETAIL, SEE BD-ID6E.

FOR TYPE "D" WATERSTOP DETAILS, SEE BD-MS3E.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation
Office of Structures

FIXED FRAME ABUTMENT

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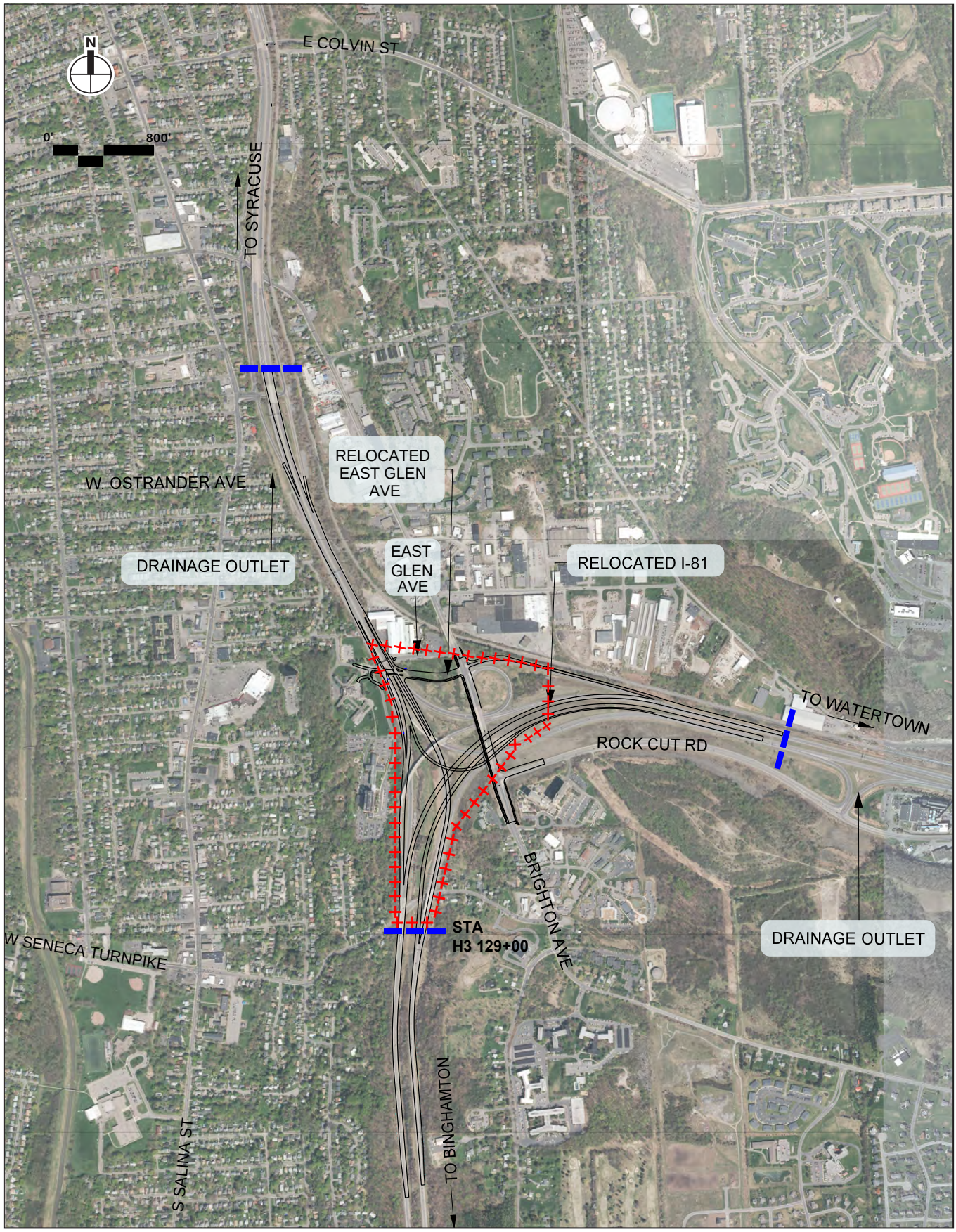
Southern Interchange Boundary Map

11.29.22



Southern Interchange Impervious Drainage Limits

Potential Existing Sinkhole Area of Concern

I-81 Viaduct Project
Phase 1, Contract 2
D900056

Southern Interchange Impervious Drainage Limits & Potential Existing Sinkhole Area of Concern

ITEM 406.XXYZ0108 – WARM MIX ASPHALT (WMA) WITH POLYMER FIBERS
ITEM 555.02XXXX01 – CONCRETE FOR STRUCTURES CLASS MP (MASS PLACEMENT)
ITEM 555.12010001 - STRUCTURAL LIGHTWEIGHT CONCRETE
ITEM 555.80020001 - CRACK REPAIR BY EPOXY INJECTION (RESTORATION)
ITEM 557.01040018 - LIGHTWEIGHT, HIGH - PERFORMANCE SUPERSTRUCTURE SLAB WITH INTEGRAL WEARING SURFACE - BOTTOM FORMWORK REQUIRED
ITEM 557.11010003 - INTEGRAL PRECAST CONCRETE BARRIER
ITEM 557.2500NN16 - CRACK SEALING USING HIGH MOLECULAR WEIGHT METHACRYLATE – LINEAR CRACKS
ITEM 557.2600NN16 - CRACK SEALING USING HIGH MOLECULAR WEIGHT METHACRYLATE - FLOODING
ITEM 557.6601NN16 - ULTRA-HIGH PERFORMANCE CONCRETE (UHPC)
ITEM 564.20010008 – HOT-DIP GALVANIZING OF STRUCTURAL STEEL
ITEM 565.20310003 – ELASTOMERIC SLIDING BEARINGS (EXPANSION)
ITEM 567.51000016 - SEALING EXISTING BRIDGE DECK JOINTS
ITEM 572.0002NN01 - METALIZING
ITEM 579.03000002 - STRUCTURAL SLAB RECONSTRUCTION PREPARATION, HYDRODEMOLITION – REINFORCEMENT EXPOSURE NOT REQUIRED
ITEM 582.99000016 - EMBEDMENT OF GALVANIC ANODES IN CONCRETE
ITEM 584.21010001 - ULTRA-HIGH PERFORMANCE CONCRETE (UHPC) OVERLAY
ITEM 607.41010010 - TEMPORARY PLASTIC BARRIER FENCE
ITEM 611.190X0024 - POST-PLANTING CARE WITH REPLACEMENT
ITEM 613.70XX0011 - BIRD REPELLENT SYSTEM
ITEM 634.99010017 – BUILDING CONDITION SURVEY
ITEM 634.99020017 – VIBRATION MONITORING (NONBLASTING)
ITEM 637.4000NN20 - WEBCAM SYSTEM
ITEM 643.99010004 - PRECAST CONCRETE NOISE BARRIER SYSTEM
ITEM 662.60000415 – FURNISHING ELECTRICAL SERVICE
ITEM 680.05010007 – 360 DEGREE CAMERA VIDEO DETECTION SYSTEM
ITEM 680.05020007 – 360 DEGREE CAMERA ASSEMBLY
ITEM 680.05040004 – ADVANCE VEHICLE VIDEO DETECTION CAMERA FOR TRAFFIC SIGNALS
ITEM 680.80324515 - INSTALL MICROCOMPUTER CABINET
ITEM 680.80325010 – ALUMINUM MICROCOMPUTER CABINET BASE
ITEM 680.81330010 – AUDIBLE PEDESTRIAN SIGNAL
ITEM 680.81500010 – PEDESTRIAN COUNT-DOWN TIMER MODULE
ITEM 680.90920103 – ELECTRIC METER CHANNEL, 100 AMPERE, SINGLE PHASE, 240 VOLT FOR TRAFFIC SIGNAL INSTALLATIONS
ITEM 680.94997008 – FURNISH AND INSTALL ELECTRICAL DISCONNECT/ GENERATOR TRANSFER SWITCH
ITEM 680.95010615 – SERVICE CABLE 1 CONDUCTOR, NO. 06 AWG
ITEM 683.06010013 - TRAFFIC MONITORING CABINET
ITEM 683.07250010 - FIBER OPTIC DROP CABLE
ITEM 683.10120008 - HD IP CAMERA ASSEMBLY - DOME TYPE
ITEM 683.10900010 - 5.8 GHz. WIRELESS VIDEO TRANSMITTER
ITEM 683.10910010 - 5.8 GHz. WIRELESS VIDEO RECEIVER
ITEM 683.91150010 – MULTI-LANE RADAR TRAFFIC DETECTOR - FURNISH AND INSTALL
ITEM 683.93XXYZ04 – DYNAMIC MESSAGE SIGN (DMS) FULL MATRIX,

FRONT ACCESS LED
ITEM 683.95010011 - MPEG-4 VIDEO ENCODER, SINGLE CHANNEL
ITEM 683.95050010 – ETHERNET SWITCH
ITEM 683.96100305 – POWER DISTRIBUTION UNIT
ITEM 685.1X010004 – EPOXY PAINT WITH WET-NIGHT REFLECTIVE ELEMENTS 20 MILS (GROOVED PAVEMENT METHOD)
ITEM 800.01000015 – DESIGN BUILD – DESIGN SERVICES
ITEM 800.02000015 – DESIGN BUILD – CONSTRUCTION INSPECTION SERVICES
ITEM 800.03000015 – DESIGN BUILD – QUALITY CONTROL SERVICES
ITEM 800.0400NN15 – DESIGN BUILD – EXTRA WORK
ITEM 800.05000015 – DESIGN BUILD – SITE MOBILIZATION
ITEM 800.06000115 – DESIGN BUILD – CONSTRUCTION WORK
ITEM 800.0608NN15 – DESIGN BUILD – CONSTRUCTION WORK – STRUCTURAL REPAIRS
ITEM 800.1000NN15 – DESIGN BUILD – UTILITY RELATED WORK
ITEM 800.14000115 - DESIGN BUILD - LOCAL HIRE INCENTIVE
ITEM 800.15000115 – DESIGN BUILD - TRAINING REQUIREMENTS
ITEM 800.16000120 – DESIGN BUILD – STEEL/IRON PRICE ADJUSTMENT

In the event of a discrepancy between the version of any Special Specification attached herein and the version available from the NYSDOT web site listed above, the version included in these Contract Documents shall apply.

ITEM 555.12010001 - STRUCTURAL LIGHTWEIGHT CONCRETE

DESCRIPTION. Furnish and place structural lightweight concrete as shown in the contract documents.

MATERIALS. Use materials meeting §555-2. Perform additional work as follows:

A. Design. Design a lightweight concrete mixture, proportioned according to the American Concrete Institute Manual of Concrete Practice, ACI 211.2, Standard Practice for Selecting Proportions for Structural Lightweight Concrete.

1. Produce a homogeneous mixture of cement, pozzolan (Fly Ash or GGBFS), microsilica, fine aggregate, lightweight coarse aggregate, air entraining agent, normal range set-retarding, water-reducing admixture, and water, as designed.

2. Use Type I, I/II, II (§701-01) or Type SF (§701-03) cement. Use a minimum cementitious content of 675 lb/yd³. Use 15-20% pozzolan (§711-10, Flyash, or §711-12 GGBFS), and 6-10% microsilica (§711-11).

3. Use lightweight coarse aggregate conforming to §703-10, with a gradation in the 3/4 inch to No. 4 size designation in ASTM C330, Table 1.

4. Determine the cement content for each trial batch by means of a yield test according to ASTM C138.

a. At least 10 working days prior to concrete placement, provide the Materials Engineer with a copy of the trial mix design with the following data:

- Fine and coarse aggregate (saturated, surface dry condition) content in lb/yd³.
- Cementitious content in lb/yd³.
- Water content in lb/yd³.
- Unit weight of freshly mixed concrete in accordance with ASTM C138.
- Dry unit weight in accordance with ASTM C567.
- 28-day compressive strengths.
- Batch quantities of all materials as they will appear on the batch record.
- The contractor shall provide a “target slump” suitable for the handling and placing operations of the given project.
- The maximum w/c ratio is 0.42.

b. The Materials Engineer, or their representative, will approve the batch quantities prior to use. Use these values to manufacture all lightweight concrete for this project, and periodically correct the batch weights to account for changes in the fine aggregate fineness modulus and aggregate moisture contents in accordance with Materials Method 9.1, or current Department directives.

B. Stockpile Handling. Construct lightweight coarse aggregate stockpile(s) at the production facility so as to maintain uniform moisture throughout the pile. Continuously and uniformly sprinkle the stockpile(s) with water using a sprinkler system approved by the Materials Engineer. Soak for a minimum of 48 hours, or until the stockpile has achieved a minimum internal moisture content of 15% by weight. If a steady rain of comparable intensity occurs, turn off the sprinkler system.

If the rain ceases prior to the end of the wetting period, restart the sprinkling system. At the end of the wetting period, or when a rainfall ceases beyond the end of the wetting period, allow stockpiles to drain for 12 to 15 hours immediately prior to use.

C. Sampling of Materials. The Materials Engineer's representative, will take a 1 liter sample of microsilica in accordance with Materials Method 9.1, or current Department directives, for each day's placement for testing. Sampling of other materials will be at the direction of the Regional Materials Engineer.

D. Batching. After the materials have been accepted for this work, determine the proportions for concrete and equivalent batch weights based on trials made with materials to be used in the work.

• If densified microsilica powder is used and added independently - weigh cumulatively in the following order: cement, fly ash (or GGBFS), then microsilica. Base the batching tolerance of ± 0.5 % on the total weight of cementitious material, for each material draw weight.

• If densified microsilica powder is used as part of blended cement - weigh cumulatively in the following order: blended cement, then fly ash (or GGBFS). Base the batching tolerance of ± 1% on the total weight of cementitious material, for each material draw weight.

E. Compressive Strength Determination. Achieve an average 28-day compressive strength of 3600 psi, or greater, with no individual cylinder compressive strength less than 3000 psi.

F. Density Determination. Produce concrete with an average dry unit weight ranging from 110 to 115 lb/ft³ when tested in accordance with ASTM C567.

CONSTRUCTION DETAILS. Apply the provisions of §555-3 and the following modifications:

A. Concrete Manufacturing and Transporting. Add the following to §555-3.01:

1. Use slump, unit weight and air tests as a control measure to maintain a suitable consistency. Perform slump, unit weight and air tests according to Materials Method 9.2. Determine air content by the volumetric method (roll-a- meter) as described in ASTM C173. Air content and slump placement limits are:

	Minimum	Desired	Maximum
Air Content (%)	5.0	6.5	8.0
Slump (inches)	$2\ ^{1}/_{2}$	3-5	5

[1] If pumping of Lightweight Concrete is performed, the slump for acceptance prior to pumping shall be within +/- 1" of the mixtures design target slump.

2. If the lightweight coarse aggregate moisture content at the time of batching is less than saturated surface dry (SSD), introduce the coarse aggregate, along with approximately ⅔ of the total mixing water, into the mixer and mix for a minimum of 10 minutes, then continue batching the remaining ingredients. If the coarse aggregate is in an SSD condition, batch the coarse aggregate routinely with the fine aggregate, admixtures, cement, fly ash (or GGBFS), microsilica, and mixing water, then mix completely.

3. Have the lightweight aggregate manufacturer supply a service representative at the site for the first two days of concrete placement operations to assist in the control of lightweight concrete mixing and placement.

B. Handling, Placing and Finishing. Handle and place concrete according to §555-3.04.

C. Testing. Test the concrete according to Materials Method 9.2. The unit weight of the fresh concrete during placement should be compared to that which was submitted with trial mix design. Make adjustments to the concrete mix at the batching facility based on slump, unit weight and air tests. The Engineer will cast cylinders, in sets of 2 individual cylinders, at a frequency of 1 set for each 50 yd^3, or fraction thereof actually placed. A minimum of 1 set will represent each day's concrete placement.

D. Curing. Cure the concrete according to §555-3.08.

E. Repairs. Make any repairs as per the provisions of §555-3.13. Proposed repairs require Deputy Chief Engineer, Structures approval.

F. Rejection of Concrete. The Engineer will reject any concrete represented by a 28-day cylinder set with an average compressive strength less than 3600 psi, or an individual cylinder with a compressive strength less than 3000 psi.

G. Loading Limitations. The loading limitations of §555-3.10 apply, except that concrete cylinder sets designated for early loading must attain an average compression strength of 3600 psi, or greater, with no individual cylinder less than 3000 psi.

METHOD OF MEASUREMENT. Apply all of the provisions of §555-4.

BASIS OF PAYMENT. Apply all of the provisions of §555-5.

ITEM 567.51000016 - SEALING EXISTING BRIDGE DECK JOINTS

DESCRIPTION

The work shall consist of furnishing and installing rapid cure silicone joint sealant at the locations indicated on the plans or as directed by the Engineer.

MATERIALS

Silicone and backer rod supplied for this work shall be one of the following or approved equal:

a) Dow Corning 902 RCS - as furnished by:

SSI Commercial & Highway Construction Materials
430 S Rockford Avenue
Tusla, OK 74120

b) Wabo Two Part Silicone Sealant - as furnished by:

Watson Bowman, Acme Corp.
95 Pineview Drive
Amherst, NY 14428

Two copies of materials details for the sealant shall be supplied to the Engineer at least ten days prior to the intended use of the product.

CONSTRUCTION DETAILS

1. General. The manufacturer's recommended practices shall be strictly adhered to.

2. Surface Preparation. The Contractor shall remove existing seals, (unless otherwise noted on the plans). The surfaces to receive the sealant shall be abrasive blast cleaned of all laitance, oil, grease, or any other material which may affect the bond between the silicone and its mating surface.

3. Placement. The seal shall be placed in position in a bridge joint recess as shown on the plans or as directed by the Engineer.

4. The completed joint shall be tested and corrected in accordance with Subsection 567-3.01H "Watertight Integrity Test" or as directed by the Engineer.

METHOD OF MEASUREMENT

Payment will be made as the number of feet of joint completely resealed, measured horizontally and vertically along the centerline of joint system between the outer limits as indicated on the contract plans.

BASIS OF PAYMENT

The unit price bid per feet shall include all labor, materials and equipment necessary to complete the work.

ITEM 579.03000002 - STRUCTURAL SLAB RECONSTRUCTION PREPARATION, HYDRODEMOLITION – REINFORCEMENT EXPOSURE NOT REQUIRED

DESCRIPTION

This work shall consist of utilizing hydrodemolition to remove ¼ inch minimum depth of sound concrete and all unsound material to prepare an existing structural slab and approach slab for a specialized concrete overlay. A highly rough and bondable surface shall be provided by the hydrodemolition equipment. Exposure of reinforcement is not required but may occur depending on the condition of the existing concrete.

MATERIALS

All the provisions of §579-2.01 shall apply.

Rapid Hardening Concrete Repair Materials shall meet the requirements of §701-09.

Hydrodemolition equipment. All requirements of §579-3.04 shall apply. Hydrodemolition equipment shall be computerized, self-propelled, and utilize a high pressure water jet stream to provide a rough and bondable surface while removing unsound concrete, rust, and concrete particles with one pass.

Vacuum cleaning equipment. Vacuum cleaning equipment shall be equipped with fugitive dust control devices, capable of removing wet debris and water all in the same pass, to remove hydrodemolition debris.

CONSTRUCTION

General. Existing concrete overlays and bituminous overlays shall be removed using mechanical scarification prior to hydrodemolition surface preparation. Scarification shall be performed following the requirements §579-3.01. On structural slabs where no existing overlay is present, an initial depth of concrete may be removed using mechanical scarification. No damage shall occur to the existing reinforcing steel or the existing concrete deck that is to remain.

Calibration of Hydrodemolition Equipment. All construction debris, milling debris, and dust must be removed from the bridge deck prior to calibration and commencement of the hydrodemolition surface preparation operation.

On a 7 feet x 7 feet area of sound concrete as designated by the Engineer, calibrate the hydrodemolition equipment to remove 95% of the concrete surface in one pass, removing ¼ inch minimum depth of sound concrete and all unsound concrete. Move the hydrodemolition equipment to a second 7 feet x 7 feet area that is deemed unsound, as designated by the Engineer, to demonstrate the ability of the equipment to remove all unsound concrete and provide a highly rough and bondable surface. A rough surface shall be measured using a 10 (ten) foot straight edge, providing a minimum of five locations with a 1(one) inch deviation from the top of the exposed aggregates to the mortar line (valley) of the hydrodemolition surface.

If the equipment does not provide satisfactory results, repeat the above calibrations. If satisfactory results cannot be obtained within three attempts, the hydrodemolition equipment shall be removed from the project site and another hydrodemolition unit will be provided for calibration.

ITEM 579.03000002 - STRUCTURAL SLAB RECONSTRUCTION PREPARATION, HYDRODEMOLITION – REINFORCEMENT EXPOSURE NOT REQUIRED

A Representative of the hydrodemolition equipment company shall be present to provide guidance to the Contractor with the calibration. After successful calibration, the hydrodemolition equipment Representative shall provide the Engineer with a listing of the equipment settings including:

1. Water pressure gauge
2. Machine staging control (step)
3. Nozzle size
4. Nozzle speed (travel)
5. Water flow rate

The calibration procedure specified is required for each separate span of a structure or once per week, whichever is greater.

The hydrodemolition surface preparation operation shall begin after the Engineer has approved the calibration.

Hydrodemolition. Perform hydrodemolition over the entire top surface of the structural slab to provide a rough and bondable surface. Remove a minimum ¼ inch of concrete or to the depth specified in the plans, and any unsound concrete, using one hydrodemolition pass. Stop the surface preparation operation if it is determined that sound concrete is being removed or unsatisfactory results are being obtained. Perform recalibration or changes to equipment and method as necessary to maintain acceptable removal results.

After the hydrodemolition surface preparation operation has completed the initial pass, and the deck is dry and frost free, resound the deck to ensure all unsound material has been removed. Remove unsound materials detected by the Engineer at no additional cost to the Department. Any unsound concrete or original slab surface remaining after the hydrodemolition pass shall be removed using additional hydrodemolition passes or use of pneumatic equipment meeting the requirements of §580-3.02. Pneumatic hammers operated at no more than a 45 degree angle from horizontal, shall be used in areas that are inaccessible to the hydrodemolition equipment. Unsound concrete is defined as existing structural slab concrete that is deteriorated, unbounded, or spalled.

Clean the hydodemolition and milling debris with a vacuum system equipped with fugitive dust control devices and capable of removing wet debris and water all in the same pass. Remove all standing water with oil- free compressed air. Perform cleaning in a timely fashion before the debris and water is allowed to dry on the deck surface. Remove any material allowed to dry at no additional cost to the Department. Splice or replace any reinforcing steel damaged or dislodged by these operations with the same size bar, at no additional cost to the Department.

Reinforcement exposed by the hydrodemolition process will not require any additional concrete removal to provide a minimum 1 (one) inch clearance around the reinforcing bars providing that the existing concrete is sound. All loose concrete shall be removed around reinforcing bars. Any exposed reinforcement shall be water blast cleaned with a 7000 psi water jet within 48 hours prior to placement of new concrete.

ITEM 579.03000002 - STRUCTURAL SLAB RECONSTRUCTION PREPARATION, HYDRODEMOLITION – REINFORCEMENT EXPOSURE NOT REQUIRED

Where hydrodemolition results in removal of concrete to the full depth of the structural slab, prepare the patches following the requirements of §579-3.03 except curing shall be a minimum of 24 hours prior to any other concrete placement work. For fast track project applications, the use of a rapid hardening repair material (701-09) may be considered when the area of any one full depth patch is 5 square feet or less.

When used, preparation, placement, and curing of the repair material shall follow manufacturer's recommendations.

METHOD OF MEASUREMENT

Structural Slab Scarification. When the removal of existing concrete and bituminous overlays is necessary prior to performing hydrodemolition surface preparation, the requirements of §579-4.01 shall apply.

Structural Slab Hydrodemolition. The work will be measured as the number of square feet of concrete removed as stated in the estimate of quantities shown on the plans regardless of the number of passes or required additional removal by methods other than hydrodemolition.

BASIS OF PAYMENT

The unit price bid for this work shall include removal and disposal of all concrete and debris, vacuuming, shielding, water control, additional jack hammering and concrete removal necessary to prepare the structural slab and approach slabs for the placement of a specialized concrete overlay. All labor, materials, and equipment for full depth patching in localized areas shall also be covered by the unit price bid for this work. Scarification of concrete and bituminous overlays shall be paid for separately under Item 579.01.

Payment will be made under:

Item No.	Item	Pay unit
579.03000002	Structural Slab Reconstruction Preparation, Hydrodemolition - Reinforcement Exposure Not Required	Square foot

ITEM 584.21010001 - ULTRA-HIGH PERFORMANCE CONCRETE (UHPC) OVERLAY

DESCRIPTION
Furnish and place ultra-high performance concrete overlay as shown in the Contract Documents.

MATERIAL
Ultra High Performance Concrete (UHPC)

ULTRA HIGH PERFORMANCE CONCRETE (UHPC) MIX DESIGN APPROVAL
The material shall be Ultra High Performance Concrete, with all components supplied by one manufacturer. Materials commonly used in UHPC follow:
Fine aggregate
Cementitious material
Super plasticizer
Accelerator
Steel Fibers, deformed, specifically made for concrete reinforcement (3% minimum, by volume)

The mix must be capable of being placed on an 8% grade while maintaining the required profile.

Water shall meet the requirements of §712-01.

UHPC material shall meet the following, 28 days unless otherwise noted:

Minimum Compressive Strength (ASTM C39)	
28 day	$\geq$ 18 ksi
48 hours	$\geq$ 12 ksi
Prism Flexural Tensile toughness (ASTM C1018; 10 in. span)	$I_{30} \geq 48$
Long-Term Shrinkage (ASTM C157; initial reading after set)	$\leq$ 766 microstrain
Chloride Ion Penetrability (ASTM C1202)	$\leq$ 250 coulombs
Scaling Resistance (ASTM C672)	$y < 3$
Abrasion Resistance (ASTM C944 2x weight; ground surface)	< 0.025 oz. lost
Alkali-Silica Reaction (ASTM C1260; tested for 28 days)	Innocuous

Casting and testing must include the following (The DCES may waive tests if these tests have been previously performed for material supplied by the manufacturer):

A minimum of 16 cylinders 3 in. X 6 in. shall be cast.

All cylinders shall be cured using the same method of curing proposed to be used in the field. The ambient temperature during curing shall be within the range of 65ºF and 75 ºF. 2 cylinders shall be tested each at each of the following times: Testing times are at 12 hours,18 hours 24 hours, 48 hours, 72 hours, 96 hours, 7 days, and 28 days. The compressive strength shall be measured by ASTM C39 and shall meet 12 ksi minimum at 48 hours and 18 ksi minimum at 28 days. Only a UHPC mix design that passes these tests may be used.

The manufacturer shall designate a target slump flow for the mix design. Slump flow will be measured in the field to determine whether the UHPC is properly mixed.

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Test Slab
At least 30 days before the proposed placement, the Contractor shall place a rectangular test slab 4 feet by 12 feet, with a grade in the longitudinal direction equal to the steepest grade of the overlay placement. The placement shall be 3 inches deep. Six cores shall be taken at locations chosen by the Engineer, such that two cores are taken in each third of the slab, as measured longitudinally. The depth of cores must be within ½ inch of 3 inches.

If the Contractor does not achieve the required tolerance, procedures must be changed to assure the material can be placed properly, and the test slab repeated. Subsequent failures must be followed by placement of a new test slab, until the Contractor is successful.

Results of all the tests above, conducted by an AASHTO accredited testing lab shall be submitted to the DCES for review and approval a minimum of 30 days prior to the use of UHPC in the field.

Equipment for Maturity Testing
Use a Maturity Meter and thermocouples that can:

- Provide a maturity value based on the Equivalent Age or Temperature Time Method as detailed in ASTM C 1074-11.
- Continuously log and store maturity data.
- Accurate to within 1ºF when the meter is calibrated per the manufacturer's instructions.
- Take readings every half hour for the first 48 hours and every hour after that at a minimum.
- Print data and/or download it into a spreadsheet.

Method for Maturity Testing
The procedure for utilizing the maturity method to determine in-place UHPC strengths includes three steps: development of the strength-maturity relationship, monitoring the maturity of the placement, and regular validation of the strength maturity relationship. Any changes in the mix design, its components, or proportions will require that a new strength-maturity relationship be developed.

The strength-maturity relationship shall be developed one month prior to construction. Continue data collection for the strength-maturity relationship after acceptance of the maturity value until the strength reaches 18 ksi.

A procedure to develop the strength-maturity relationship shall be submitted to the DCES for review and approval along with the shop drawings. The submitted procedure shall include all necessary information for the development of the strength maturity relationship. All necessary testing included in the procedure shall be conducted by an AASHTO accredited testing lab.

CONSTRUCTION
The requirements of 584-3 Construction Details and the following apply.

Installation Drawing Installation drawings shall be submitted per Section 2.3 of the PCCM (Prestressed Concrete Construction Manual) showing all equipment and methods of handling, placing, and curing the UHPC.

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Pre-Pour Meeting: Prior to the initial placement of the UHPC, the Contractor shall arrange for an on-site meeting that shall include the UHPC representative, the Contractor's staff that will participate in the placement, the NYSDOT Engineer, and the NYSDOT Inspectors. The meeting objective is to clearly outline the procedures for properly preparing the surface to receive the UHPC and the mixing, transporting, finishing, and curing of the UHPC material.

Responsibility of UHPC Supplier Representative: The Contractor shall arrange for a representative of the UHPC supplier to be present during placement operation. The representative shall be knowledgeable in the surface preparation, supply, mixing, delivery, placement, finishing, and curing of the UHPC material. The representative shall examine the deck prior to placement and inform the Engineer of any deficiencies in any of the operations, beginning from the preparation of the surface.

Storage: The contractor shall assure the proper storage of premix, fibers and additives as required by the supplier's specifications to protect materials against loss of physical and mechanical properties.

Curing
The UHPC shall be cured as shown on the installation drawing. Curing shall continue until the compressive strength has achieved 12 ksi.

Quality Control
The contractor shall measure the slump flow on each batch of UHPC. The slump flow will be conducted using a mini-slump cone. The flow for each batch shall be within two inches of the target established by the manufacturer. The slump flow for each batch shall be recorded in the QA/QC log. A copy of the log shall be given to the Engineer.

Estimation of In Place Strength
Compressive strengths shall be per the maturity method or ASTM C 39. The Contract Documents may contain requirements for specific strengths to achieve construction objectives such as carrying construction loads or opening to traffic. Break cylinders or follow maturity procedures to verify these intermediate strengths and to determine final strengths.

Maturity Method
Two thermocouples per each UHPC pour, one at each end, shall be installed. The locations of these installations shall be shown on the installation drawings. These locations shall be revised if directed by the DCES. The thermocouple wiring may be connected to reinforcing steel, but probe endings may not be in direct contact with the steel. Consider structural or exposure conditions when placing thermocouples.

The maturity function used to estimate strength will be calculated with the same formula that is used by the maturity meter that established the initial strength maturity relationship. Record and save the maturity data from the meter until the strength reaches 12 ksi. Disconnect the meter and clip all wires flush with the concrete surface. Copies of the calculations will be provided to the engineer.

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Validation of the Strength Maturity Relationship

For each day of placement, perform validation tests by casting 7 cylinders. Equip one of the cylinders with a thermocouple. Test the cylinders as close as possible to the maturity value corresponding to 18 ksi. Record the maturity value immediately prior to testing. All testing shall be conducted by an AASHTO accredited testing lab. Report the results to the DCES.

If the average value of compressive strength of each pair of cylinders is within 10% of the estimated value, the strength maturity relationship will be validated. If the average cylinder value is more than 10% below the estimated value, the strength maturity relationship will need to be re established. If the first four cylinders produce acceptable results, the remainder need not be tested.

The Department may perform additional testing for research purposes. Sample preparation and testing in addition to that required in this specification will be performed by NYSDOT personnel.

In case of loss of required data, or non-verification of the strength maturity relationship, use the cylinders cast above, one pair at a time, to verify the strength.

Texturing.

Diamond grinding of the riding surface shall occur after curing is complete and shall follow the requirements of §505. Unless otherwise noted on the Plans the overlay surface shall not vary more than ¼ inch from the lower edge of a 12'± 2" long straight edge placed in any direction. Surface areas larger than 30,000 ft² may require an inertial profiler as indicated in the Plans. Any surfaces which fail to conform to the specified tolerance shall be re-profiled by diamond grinding in accordance with the requirements of §505.

After diamond grinding, longitudinally saw cut the surface in accordance with section 558.02 – Longitudinal Saw-Cut Grooving of Structural Slab Surface. Adjust saw cut depth to account for texture of the diamond ground surface.

MEASUREMENT FOR PAYMENT

Measurement will be by volume of UHPC Overlay placed in cubic feet, measured to the nearest cubic foot.

BASIS OF PAYMENT

Payment at the contract price for the above item shall be full compensation for all labor, equipment, and material to do the work, including diamond grinding and sawcut grooving.

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ITEM 800.1000NN15 – DESIGN BUILD – UTILITY RELATED WORK

DESCRIPTION. This work shall consist of utility related work in accordance with the contract documents or owner requirements. The "owner" of each utility is identified in the contract documents.

MATERIALS. Materials shall be as specified in the contract documents or owner requirements. If none specified, then the proposed material shall be approved by the Engineer of Record before any purchase is made.

CONSTRUCTION DETAILS. The Design Builder shall perform all utility related work in accordance with the requirements in the contract documents or owner requirements. In case of a conflict with owner requirements, the owner requirements shall take precedence.

METHOD OF MEASUREMENT. *Design Build – Utility Related Work* as defined in the contract documents will be measured for payment on a fixed price lump sum basis for each utility. The individual utilities will be identified in the contract documents.

BASIS OF PAYMENT. The fixed price lump sum for Design Build – Utility Related Work shall include the cost of furnishing all labor, materials, equipment, design, construction inspection, testing, and supervision to satisfactorily complete the work. Progress payments will be made for each utility work in accordance with the contract documents.

FIXED PRICE ITEM

The fixed price shown in the proposal for this pay item is not to be altered in any manner by the Proposer. Should the amount be altered, the new figure will be disregarded and the original price will be used to determine the total amount bid for the Contract.

Note: NN in pay item number denotes serialization by each utility.